The Canadian Medical Association Journal

ANNUAL MEETING - C.M.A. — QUEBEC - JUNE 11 - 15, 1956

VOLUME 74 • NUMBER 6 — TORONTO • MARCH 15, 1956

Contents

ORIGINAL ARTICLES

CASE REPORTS

SPECIAL ARTICLE

CLINICAL AND LABORATORY NOTES

EDITORIALS AND COMMENTS

89th ANNUAL MEETING

PUBLIC RELATIONS FORUM

GENERAL PRACTICE

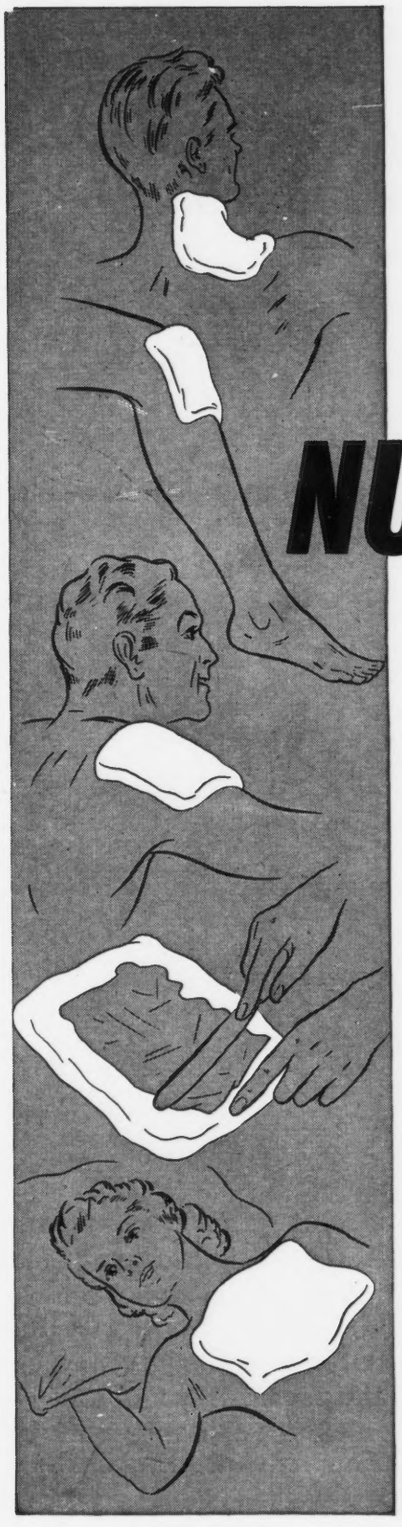
MEDICO-LEGAL

CORRESPONDENCE

Published twice a month by THE CANADIAN MEDICAL ASSOCIATION, 150 St. George Street, Toronto 5.

[PRICE: CURRENT COPY 75c; BACK COPY $1.00] [COPYRIGHTED]

Printed in Canada by MURRAY PRINTING & GRAVURE LIMITED • P.O. BOX 510, TORONTO 15



preferred...

topical analgesic-decongestive treatment

NUMOTIZINE

—in inflammatory conditions, glandular swellings, contusions, sprains, strains, furunculoses, abscesses.

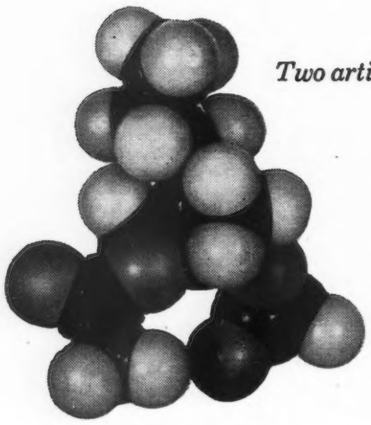
- Relieves pain
- Increases local circulation
- Absorbs exudates
- Reduces swelling
- Easy to apply and remove

Numotizine is supplied in 2, 4, 8, 15 and 30 oz. jars.

HOBART LABORATORIES, Inc.
Chicago 10, Illinois, U.S.A.

Distributors for Canada

ANGLO-FRENCH DRUG COMPANY LIMITED
209 St. Catherine St. E. Montreal 18, Que.



THE MILTOWN MOLECULE

Two articles in the April 30th issue of The Journal of the AMA[1, 2] report on . . .

an entirely new tranquilizer
with muscle relaxant action

Miltown®

The original nephrobamate

2-methyl-2-*n*-propyl-1, 3-propanediol dicarbamate
(PATENT PENDING)

unrelated to chlorpromazine or reserpine—
proved effective in

ANXIETY, TENSION, MENTAL STRESS

- A product of original research by Wallace Laboratories.
- No autonomic side effects.
- Well tolerated. Not habit forming.
- Acts within 30 minutes.
- Effective over a period of 6 hours.

DOSAGE:
One or two tablets three times daily.

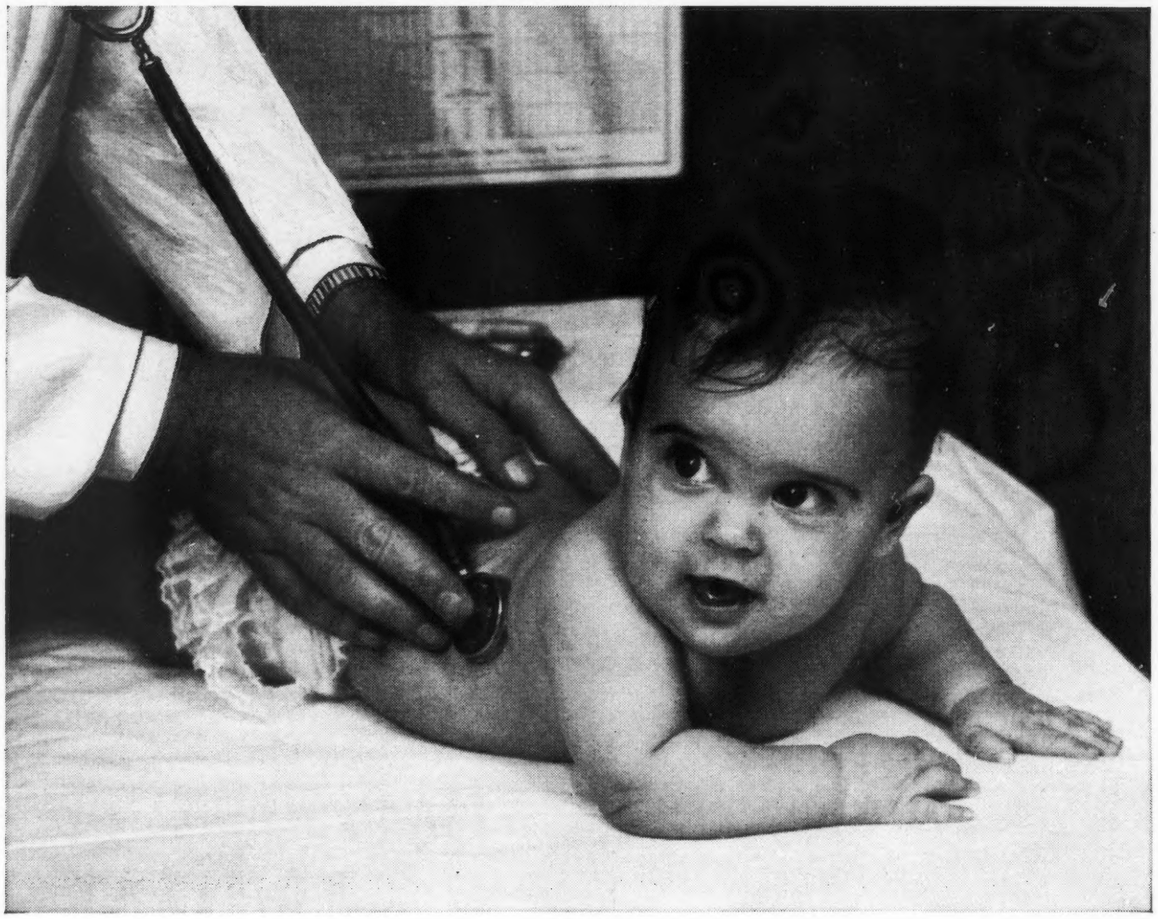
"**Miltown** . . . is a practical, safe, and clinically useful central nervous system depressant. It is not habit forming. Miltown is of most value in the so-called anxiety neurosis syndrome, especially when the primary symptom is tension . . . Miltown is an effective dormifacient and appears to have many advantages over the conventional sedatives."[1]

1. Selling, L. S.: J.A.M.A. **157**: 1594, 1955.
2. Borrus, J. C.: J.A.M.A. **157**: 1596, 1955.

WALLACE LABORATORIES

360 Adelaide St., W., Toronto

REPRINTS AND SAMPLES AVAILABLE ON REQUEST



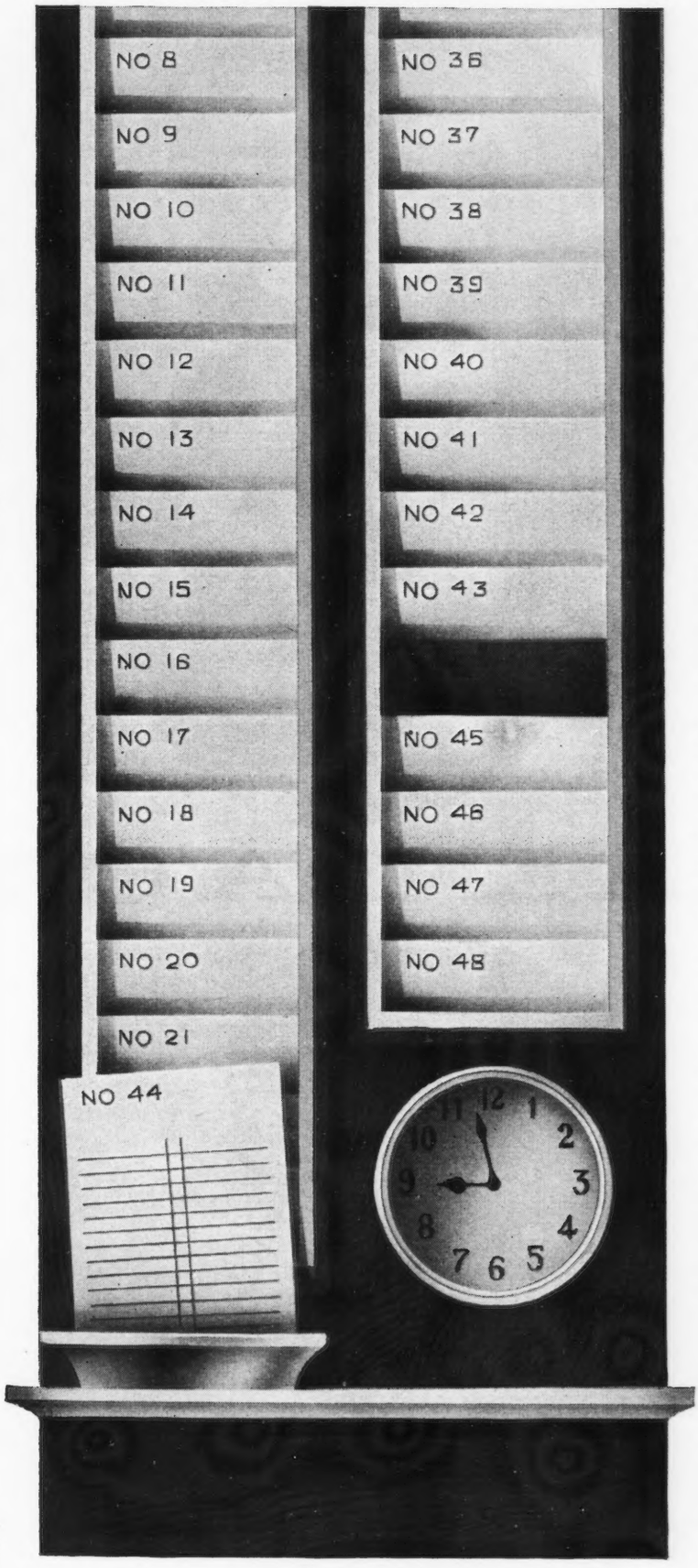
"Better physical condition when fed meat early..."

IN a study conducted by Leverton and Clark "Meat in the Diet of Young Infants", (J. A. M. A., *134*,1215 (1947), special prepared meat was added to the formula of full-term babies beginning at the age of six weeks and continuing for a period of eight weeks. The pediatrician in charge considered that the babies were in better physical condition generally as a result of the meat supplement. Nurses in attendance reported that the meat-fed infants seemed better satisfied, slept well and cried little.

Swift's Meats for Babies was the original product of this kind placed on the market. Prepared from only fine, lean meat, the food is cooked and milled to a fine puree. The texture is soft, moist and easily fed in formula or for initial spoon feeding just as it comes from the can. There are seven kinds for variety and special conditions: Beef, Lamb, Pork, Veal, Liver, Heart, Liver and Bacon, and also Swift's Egg Yolks for Babies, Salmon Seafood for Babies and the chopped Swift's Meats for Juniors.

Meats for Babies
SWIFT'S
most precious product
Swift
To Serve Your Family Better

SWIFT CANADIAN CO., LIMITED.



Canad. M. A. J.
Mar. 15, 1956, vol. 74

FALLACY

Thirty Years Ago . . .

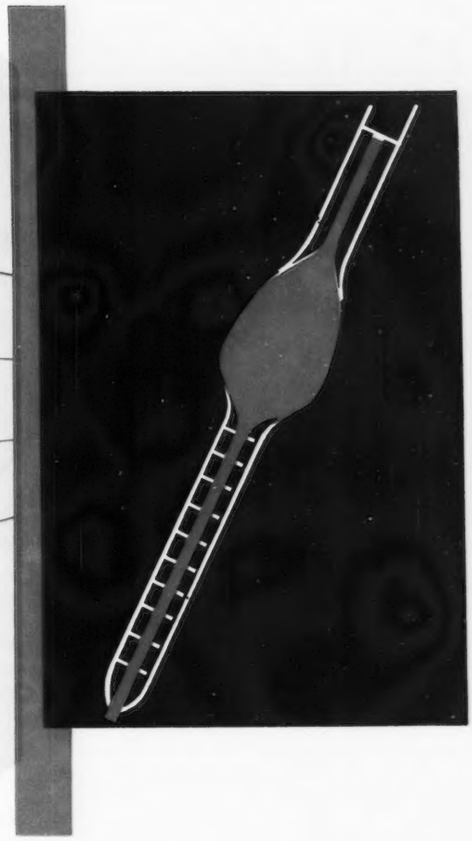
From the Journal of March, 1926

BRITISH COLUMBIA

Recently in Vancouver a large committee of prominent men has been formed to devise schemes for ameliorating the lot of certain ex-service men who are handicapped in their search for employment by physical disabilities, due to their service. Several well-known business and professional men have allied themselves with the project.

Just to make our Eastern friends envious—roses were blooming in our Vancouver gardens—in the open—on Christmas Day. How's that for weather?

Effective in the treatment of HYPOCHROMIC ANEMIA



"PROHEMA"

IT HAS BEEN SHOWN THAT:

- hypochromic anemia is essentially an iron deficiency disease;
- in many cases, administration of iron alone does not elicit a completely satisfactory response;
- when iron is given with liberal supplements of vitamins, improvement is greater and better sustained.

The value of Prohema in the treatment of hypochromic anemia is attributable to the fact that the formula is based on concepts long ago recognized empirically, and since substantiated by controlled clinical observations.

DOSAGE: One tablet three times daily after meals. In order to establish tolerance to iron, full dosage should be arrived at gradually: one tablet daily after the main meal for several days; then one tablet after breakfast and one after lunch for several days; finally, **one tablet three times daily after meals.**

"PROHEMA" TABLETS

TABLET No. 432 Frosst

Each sugar-coated tablet contains:

Ferrous sulphate (exsic.) (ferrous iron, 60 mg.)	0.3 G. (5 gr.)
Copper sulphate	1.6 mg. (1/40 gr.)
Thiamine hydrochloride	1 mg.
Riboflavin	1 mg.
Niacinamide	10 mg.
Ascorbic acid	25 mg.
Vitamin D	333 I.U.
Liver fraction 2, N.F.	67 mg.

For cases of secondary anemia showing evidence of faulty erythrocyte maturation and for megaloblastic anemia of pregnancy, Prohema Compound is available.

"PROHEMA" COMPOUND

TABLET No. 433 Frosst

Same formula as Prohema modified to contain:

Vitamin B_{12}	**2.5 mcgm.**
Folic Acid	**0.67 mg.**

Bottles of 100 tablets.

Frosst

Charles E. Frosst & Co.
MONTREAL CANADA

[Canad. M. A. J.
March 15, 1956, Vol. 74

To provide EVERY AGE GROUP

with

RECOGNIZED PROTECTIVE QUANTITIES OF

VITAMINS

and

MINERALS

WHICH MAY BE LACKING IN ORDINARY DIETS

"NEO-CHEMICAL" FOOD

ECONOMICAL

LIQUID: Costs 4 to 6½ cents per day, depending on size of package.

CAPSULES: Cost 5½ to 6½ cents per day, depending on size of package.

FOR CHILDREN

"N.C.F." ℞1

The original fluid form, with a palatable malt vehicle, for children and convalescents.

Principal ingredients	*in daily dose*
Ferric phosphate	1 3/4 gr. (110 mg.)
Copper citrate	1/18 gr. (3 mg.)
Manganese carbonate	1/90 gr. (0.8 mg.)
Vitamin A	2000 I.U.
Vitamin D	2000 I.U.
Calcium phosphate	2 1/2 gr. (150 mg.)
Thiamine HCl	2 mg.
Riboflavin	2 mg.
Sodium iodide	1/163 gr. (0.4 mg.)
Malt extract	q.s.

DOSAGE: Two small teaspoonfuls daily. Start with ¼ teaspoonful and increase gradually.

MODES OF ISSUE: 24, 72 and 144 day sizes.

Also available, **"N.C.F." ℞2, a differently-flavoured, free-flowing preparation preferred by some children.**

FOR ADULTS

"N.C.F." CAPSULES

A convenient and easily-administered form for older children and adults.

Principal ingredients	*in daily dose*
Ferrous sulphate (exsic.)	1 3/5 gr. (110 mg.)
Copper sulphate	1/13 gr. (5 mg.)
Manganese carbonate	1/90 gr. (0.8 mg.)
Vitamin A	2000 I.U.
Vitamin D	2000 I.U.
Calcium phosphate (dibasic)	4 2/7 gr. (0.3 G.)
Thiamine HCl	2 mg.
Riboflavin	2 mg.
Sodium iodide	1/163 gr. (0.4 mg.)

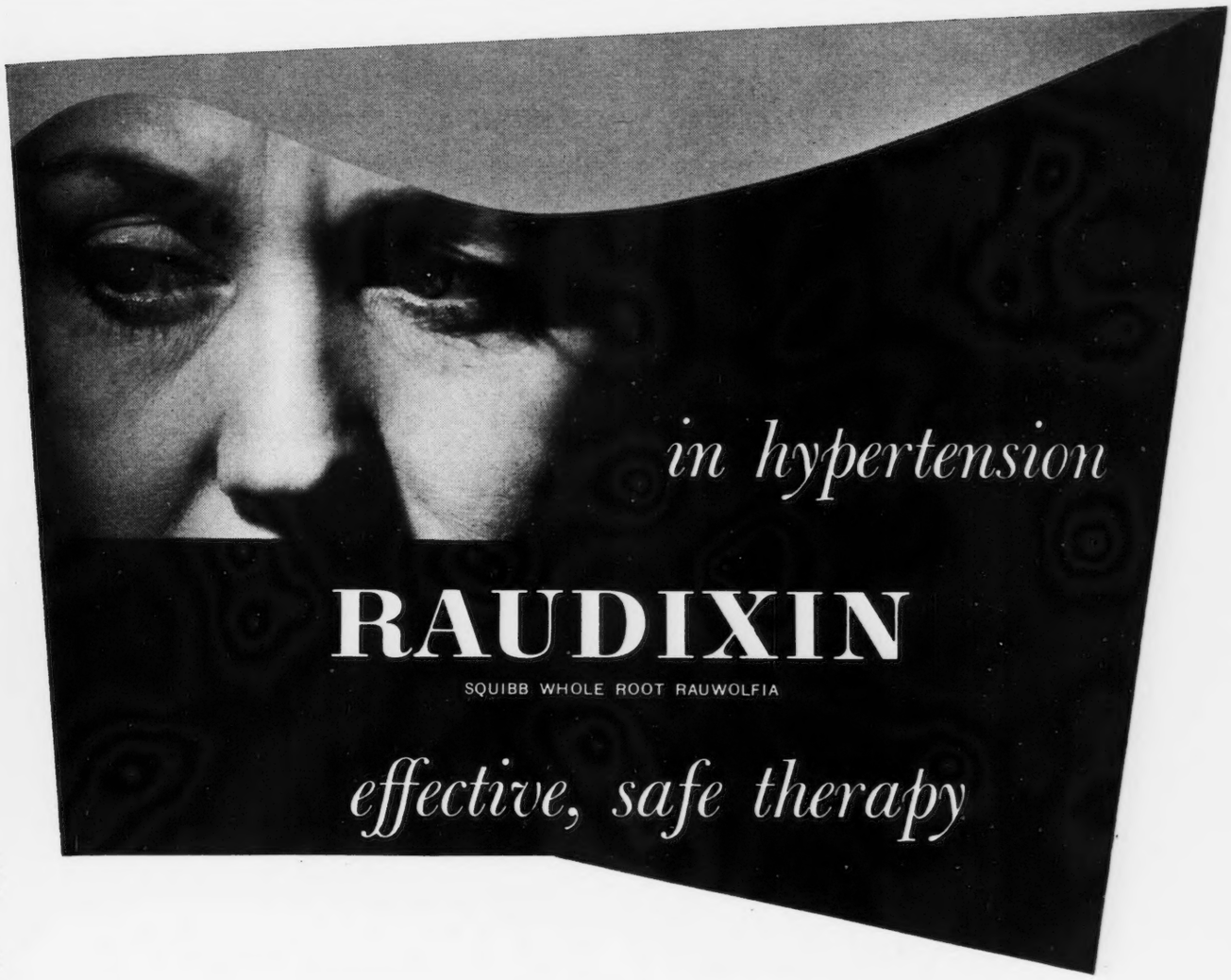
DOSAGE: Two capsules daily.

MODES OF ISSUE: Bottles of 50, 100 and 250.

Also available, **"N.C.F." Geriatric, a dietary supplement to meet the specific alimentary requirements of the "over-40" group.**

Frosst

Charles E. Frosst & Co.
MONTREAL CANADA



in hypertension

RAUDIXIN

SQUIBB WHOLE ROOT RAUWOLFIA

effective, safe therapy

● Virtually every patient with essential hypertension is a candidate for RAUDIXIN therapy.

● Raudixin may be prescribed to lower the blood pressure without the danger of a precipitous drop.

In Anxiety and Tension States a Non-Barbiturate Tranquilizing Agent.

● Raudixin is useful in patients with psychosomatic complaints or certain conditions with associated emotional overlay, such as:

headache	**insomnia**
premenstrual tension	**enuresis**
dermatologic disorders	**menopausal symptoms**

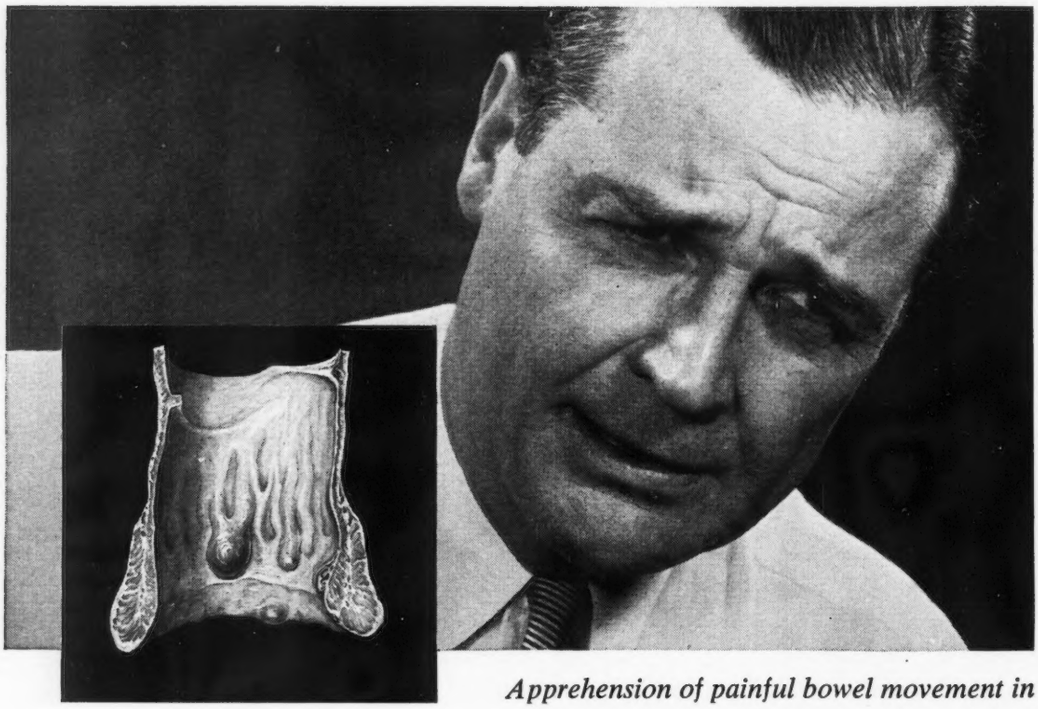
Dosage: 100 mg. b.i.d. initially; may be adjusted.

Supply: 50 mg. and 100 mg. tablets, bottles of 100 and 500.

SQUIBB

RAUDIXIN is a trademark of E. R. Squibb & Sons of Canada Limited, P. O. Box 599, Montreal, P. Q.

METAMUCIL® IN ANORECTAL CONDITIONS



Apprehension of painful bowel movement in anorectal conditions initiates a vicious cycle.

"Bowel Fear" in Anorectal Surgery and Hemorrhoids

A most difficult phase of treatment in proctologic conditions is bowel hygiene. The patient's fear of pain in the presence of hemorrhoids or following surgery sets up a psychosomatic conditioning which leads to constipation.

In the management of this type of constipation and the atonic type, cathartics should be avoided as much as possible.

The administration of Metamucil, a rounded teaspoonful in a glass of cool water every morning upon arising, and the formation of the after-breakfast habit of defecation are usually effective. The patient is instructed to try to have the bowels act immediately after breakfast, take deep breaths and make deep pressure on the left side of the abdomen, repeating this pressure again and again until complete bowel action results.*

Metamucil is not laxative in action but promotes physiologic peristalsis by its soft, plastic, "smoothage" bulk, which exerts a gentle stimulating effect on the intestinal musculature. Each dose of Metamucil (in a glass of cool water, milk or fruit juice) may be followed by another full glass of fluid if additional fluid intake is desired.

Metamucil is nonallergenic, nonirritating and truly physiologic in initiating the peristaltic reflex and abolishing the patient's fear of discomfort and pain.

Metamucil is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is supplied in containers of one pound—also four ounces and eight ounces. G. D. Searle & Co., Research in the Service of Medicine.

---

*Soper, H. W.: Diseases of the Rectum and Colon: Their Diagnosis and Treatment, Am. J. Proctol. *4*:113 (June) 1953.

G. D. SEARLE & CO. OF CANADA, LTD., 390 Weston Road, Toronto 9, Ontario

for a greater margin of safety
in corticosteroid therapy

METICORTEN*

(Prednisone)

PERMITS TREATMENT OF MORE PATIENTS

- simplified management
- up to 5 times more effective than cortisone or hydrocortisone, milligram for milligram
- minimizes sodium retention edema
- dietary regulation seldom necessary

in RHEUMATOID ARTHRITIS: better relief of pain, swelling, tenderness; diminishes joint stiffness

in INTRACTABLE ASTHMA: better relief of bronchospasm, dyspnea, cough; increases vital capacity

in COLLAGEN DISEASES AND ALLERGIES: hormone benefits with decreased electrolyte side effects

METICORTEN
is available as 5, 2.5 and 1 mg. tablets.

* T.M.

SCHERING

Schering

The McCARTHY-RITTER ENDOURETHRAL RESECTOSCOPE

See Your Dealer ***Cat. No. 5420***

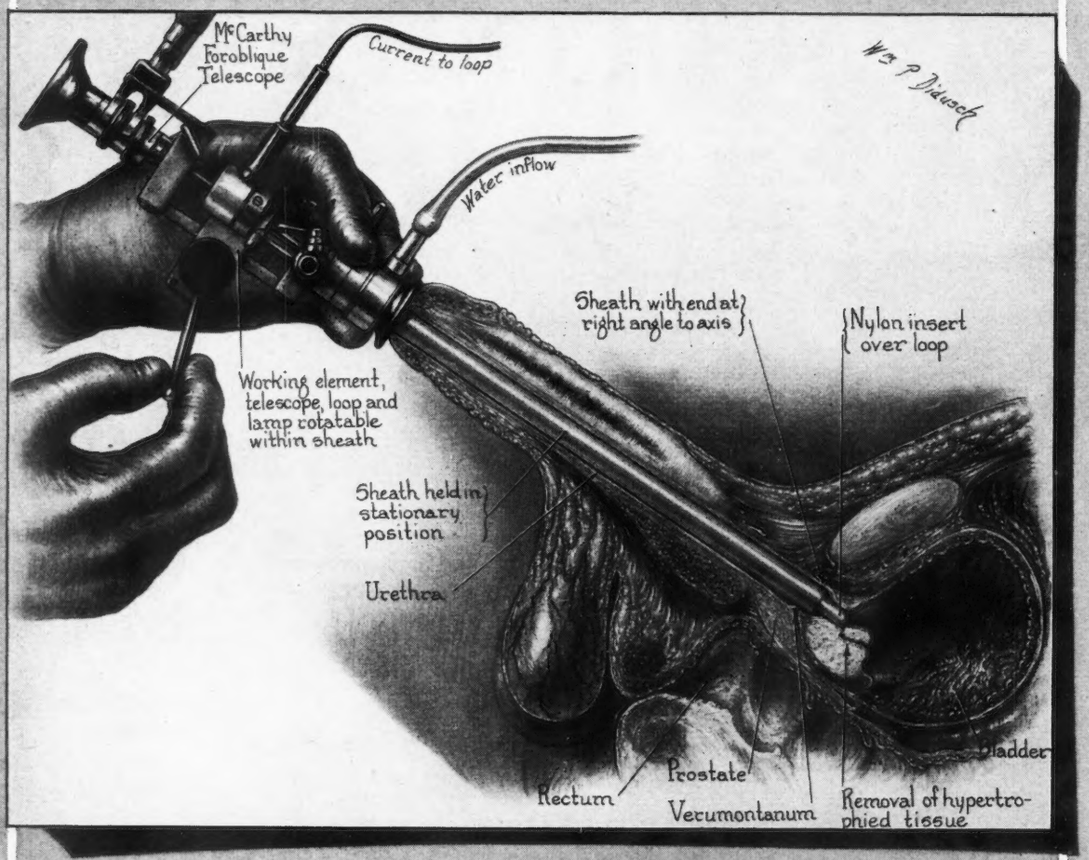


Illustration depicts use of the McCarthy-Ritter Endourethral Resectoscope in the removal of hypertrophied prostatic tissue.

- **Permits visualization of the entire lumen of the urethra without rotating the sheath.**
- **Permits visualization of pendulous urethra for study or surgery.**
- **The sheath has no fenestra, the end being rounded and cut off at right angles to the main axis of sheath.**
- **The working element fits into cone of sheath in such a manner that it may be rotated through a full 360° without moving the sheath. This reduces excessive manipulation of the sheath and the possibility of stricture of the urethra.**
- **A nylon insert covers the prongs of the loop, acts as a fenestra when at its furthest point from the end of the sheath and prevents tissue from falling between the prongs of the loop.**
- **The lamp of the telescope projects beyond the end of the sheath and dislodges adherent resected prostatic tissue.**

ESTABLISHED IN 1900

BY REINHOLD WAPPLER

FREDERICK J. WALLACE, *President*

American Cystoscope Makers, Inc.

1241 LAFAYETTE AVENUE NEW YORK 59, N. Y.

Distributed in Canada exclusively by

INGRAM & BELL

LIMITED

TORONTO

MONTREAL · WINNIPEG · CALGARY · VANCOUVER

Canad. M. A. J.
Mar. 15, 1956, vol. 74

he's taken the day in his stride

In this age of unrest and hurried living a large proportion of those seeking medical aid are beset by vague feelings of depression and anxiety; factors which may seriously impede recovery from physical illness.

Anxine Tablets provide comprehensive symptomatic treatment of anxiety states, psychoneuroses and psychosomatic disorders

by improving mood and increasing confidence,
by inducing gentle sedation and allaying anxiety

and

by securing the optimal degree of muscular relaxation.

Although each of the three components of Anxine Tablets, dexamphetamine sulphate, cyclobarbitone and mephenesin, makes an important contribution to the amelioration of the symptoms of anxiety states, none is adequate alone. It is only when they are combined, in the form of Anxine Tablets, that maximum control of symptoms is achieved.

Formula

Each Anxine Tablet contains:—

Dexamphetamine sulphate 2·5 mg.
Cyclobarbitone 35 mg.
Mephenesin 120 mg.

ANXINE

FOR ANXIETY STATES

Available in bottles of 50 tablets.

15A

ALLEN AND HANBURYS COMPANY LIMITED
TORONTO ONTARIO · LONDON ENGLAND

"Premarin"

for estrogen replacement therapy

Women between the ages of 37 and 54 years (the age of the climacteric) comprise 50 per cent of female patients in the general practitioner's waiting room. Climacteric symptoms, due to estrogen deficiency, may occur long before, during, and even years after the menopause. Replacement therapy with "Premarin", the "complete natural equine estrogen-complex"* produces prompt symptomatic relief and imparts that "sense of well-being"* so much appreciated by the patient.

Availability:

"Premarin" Tablets
"Premarin" Intravenous
"Premarin" with Phenobarbital
"Premarin" with Methyltestosterone

*Werner, A.: Acta Endocrinol. 13:87 (May) 1953.

Ayerst

Ayerst, McKenna & Harrison Limited, Montreal

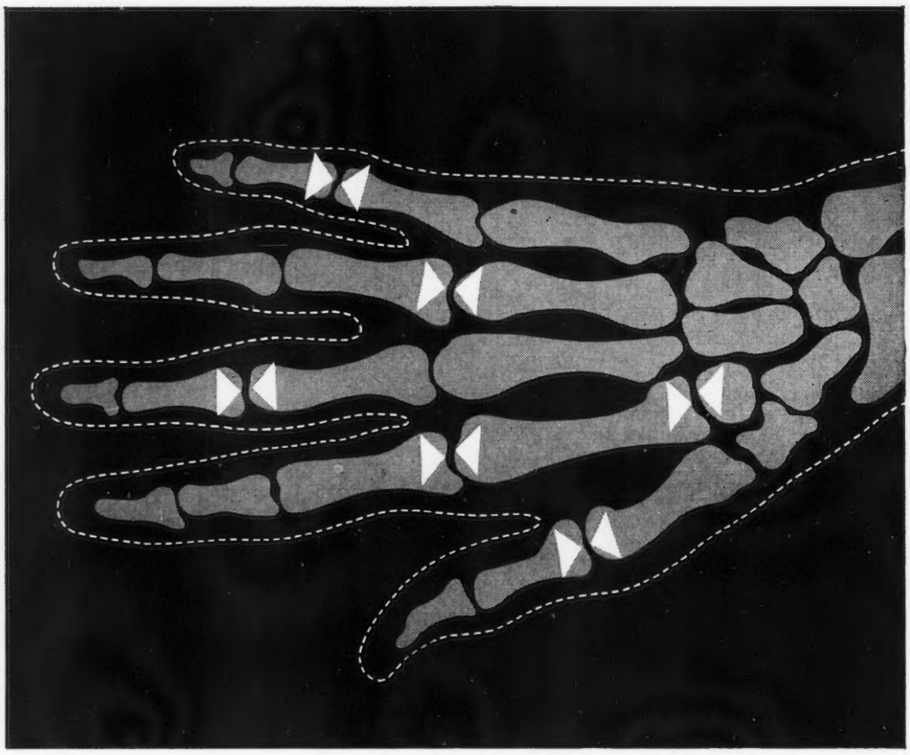
There just isn't any price parents wouldn't pay to insure good health for their children. Proof is the way today's parents are taking fullest advantage of the increasingly better medical care—new knowledge, skills, and medicines, both preventive and therapeutic—developed by the medical profession and pharmaceutical research.

And because today's families are demanding and getting more and increasingly better medical service for their children (as well as for themselves), they are perhaps more prone than ever to unthinkingly complain about the "high cost of medical care."

The truth is that today's infinitely better care actually costs *less*—and saves literally millions more lives—than the best care available a generation or so ago.

The purpose of the Parke-Davis advertisement reproduced here, as well as others in this series, is to bring home to your patients the facts about the remarkable value in good health they buy with the dollars they spend for prompt and proper medical care. This advertisement will appear in Reader's Digest. It will be read—and talked about—by thousands.

PARKE, DAVIS & CO., LTD.
TORONTO 14, ONTARIO



a recent appraisal of

nonhormonal anti-arthritic

BUTAZOLIDIN

(brand of phenylbutazone)

in the treatment of rheumatoid disorders†

in peripheral rheumatoid arthritis, the failure rate for BUTAZOLIDIN, after the first six months, is less rapid than for the corticosteroids.

in rheumatoid spondylitis, BUTAZOLIDIN shows a "dramatically low" failure rate. It is "... the drug of choice and to date the results have been much superior to those secured with x-ray therapy."

Detailed literature available on request.

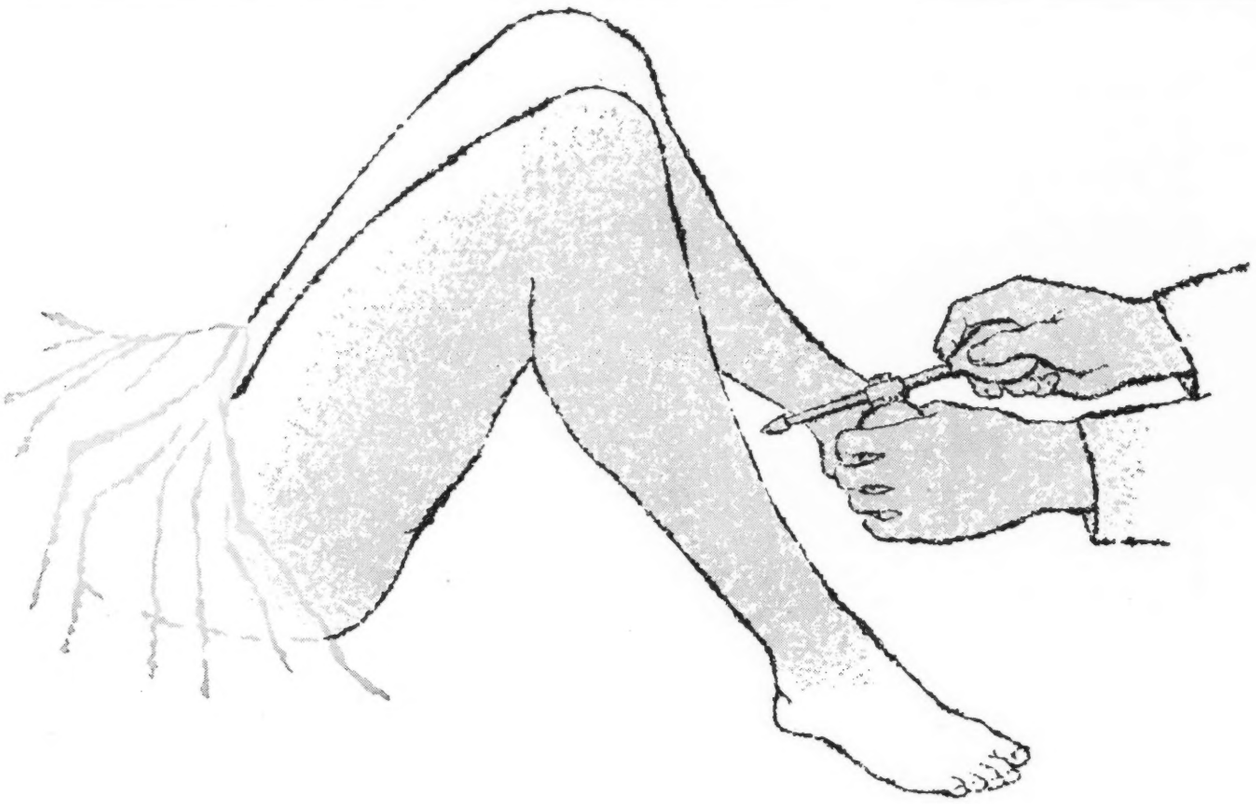
BUTAZOLIDIN (brand of phenylbutazone): Red coated tablets of 100 mg.

†Holbrook, W. P.: M. Clin. North America 39:405 (March) 1955.

GEIGY PHARMACEUTICALS
Division of Geigy (Canada) Limited • 286 St. Paul Street W., Montreal 1, Canada

Geigy

59455



Prompt pain relief in hemorrhoids . . .

greater safety from sensitization, toxicity

NEW TRONOTHANE®

HYDROCHLORIDE

(PRAMOXINE HYDROCHLORIDE, ABBOTT)

CREAM

STERILE JELLY

COMPOUND LOTION

TOPICAL SOLUTION

Peal and Karp's impressive report[1] on 858 trials of this new topical anesthetic, includes 100 cases of hemorrhoidectomy, repair of fissure in ano, and anal ulcer.

Neither toxicity nor sensitization was observed. Yet "in comparing the post-operative pains of those patients who had previous rectal operations, the comment was made that TRONOTHANE 'gave more satisfactory relief than any other drug used previously.' "

Plan now to investigate this new drug for trustworthy surface pain relief in your own practice. Supplied at all pharmacies.

Abbott

ABBOTT LABORATORIES LTD., MONTREAL

1. Peal, L., and Karp, M., A New Surface Anesthetic Agent: Tronothane, Anesthesiology, 15:637, November, 1954.

The Canadian Medical Association Journal

MARCH 15, 1956 • VOL. 74, NO. 6

THE SEX CHROMATIN AND ITS BEARING ON ERRORS OF SEX DEVELOPMENT*

MURRAY L. BARR, M.Sc., M.D., *London, Ont.*

A DIAGNOSTIC AID in congenital errors of sex development has been established recently in the form of cytological tests of chromosomal sex. These tests do not necessarily indicate the more appropriate clinical and social sex for the patient. In fact, the more suitable sex from the practical point of view is often contrary to the chromosomal sex. Nonetheless, cytological tests of sex have a useful role in indicating the presence of a congenital error in sex development and in clarifying the nature of the abnormality in doubtful cases. In addition, certain important theoretical inferences are being derived from the use of tests of chromosomal sex in developmental abnormalities in man.

Congenital errors of sex development are fortunately not common. The importance of an awareness of recent developments lies in the consequences of misjudgment in diagnosis or inappropriate management. A correct appraisal of the patient's status in early life, preferably within the first few months, is important in certain types of abnormality.

This paper is based on the cytological diagnosis of sex in this laboratory for approximately 275 patients and on recent reports by other investigators. The tissue specimens that were studied by us originated in the following countries in decreasing order of numbers: U.S.A., Canada, Great Britain, Netherlands, Denmark, Germany, Italy, Israel, Australia, New Zealand, Colombia, Jamaica, Cuba and Sudan. A considerable amount of data has accumulated during this study and a more detailed analysis will be presented later. This report is restricted to a general account of the observations with brief reference to their practical and theoretical significance. The majority of the patients are subjects with gonadal dysgenesis ("ovarian" agenesis) or some form of hermaphroditism. For this reason, and because the more significant developments are related to such patients, the observations on these developmental errors will be described.

TESTS OF CHROMOSOMAL SEX

The essentials of the cytological tests of sex are as follows. In females, but not in males, the resting nuclei of most tissues contain a special mass of chromatin, the sex chromatin, which is usually located against the inner surface of the nuclear membrane. On the basis of indirect evidence, the female sex chromatin is thought to represent special portions of the two X-chromosomes that adhere to each other. Any chromatin particle that may be formed by the XY-sex chromosome complex of male nuclei is seldom more conspicuous than the other chromatin particles throughout the nucleus. The sex chromatin is not affected by sex hormones.[1] Our current knowledge of the structural distinction between male and female cells originated in an observation by the author and E. G. Bertram;[2] the subsequent development of the cytological studies and their early application to practical problems have been recorded elsewhere.[3]

The choice of cells on which to base the cytological test of sex has become partly a matter of personal preference depending on the experience and major interests of the microscopist who assists the clinician. Cells of the Malpighian layer of the epidermis were suggested first[4] and their suitability was soon confirmed.[5] Our experience has been mainly with skin biopsies. However, epithelial cells in a smear from the oral mucosa[6, 7] or the mucosa of the reproductive tract[8] are satisfactory. These

*From the Department of Microscopic Anatomy, University of Western Ontario, and aided by grants from the National Research Council and National Health Grants (Mental Health Division) of Canada. This article is based on lectures given at the University of Manitoba (Merck Lecture) on February 15, 1955, and to the Kitchener-Waterloo Academy of Medicine on October 21, 1955.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

methods are simpler than the study of a skin biopsy and will probably acquire popularity on this account. Whatever method is used, the preparations must be of the highest technical quality since the female sex chromatin is only about one micron in diameter. An interesting and useful variant is the study of blood films.[9] In females only, there is an appendage with special characteristics and probably containing the sex chromatin, attached to a lobe of the nucleus in a small proportion of neutrophilic leukocytes.

CLINICAL APPLICATION OF CYTOLOGICAL TESTS OF SEX

Recent observations on gonadal dysgenesis and the main types of hermaphroditism (male pseudohermaphrodite, female pseudohermaphrodite and the true hermaphrodite) will be summarized in this section.

1. *Gonadal dysgenesis.* — This condition was known as "ovarian" agenesis until recently; its main features are as follows. Clinically, the patients are females who lack properly developed gonads. The external genitalia are female, and a uterus and tubes are present. The gonads take the form of a strand of connective tissue in each broad ligament, containing mesonephric elements but no germ cells or germinal epithelium. The expected signs of œstrogen deprivation become apparent at the age of puberty. These patients are short for their chronological age. Other congenital defects may be present, such as webbing of the neck, cubitus valgus, coarctation of the aorta and defective development of the mandible. Various names have become attached to "ovarian" agenesis combined with other congenital defects; Turner's syndrome is perhaps the best known. The diagnosis can be established by laparotomy or, after the age of 10 to 12 years, by finding an abnormally high level of follicle-stimulating hormone (FSH) in the urine. The cytological tests of sex are useful aids in diagnosis, especially in childhood, as will be noted further on.

The study of patients with "ovarian" agenesis has an interesting history that illustrates how the results of apparently isolated research projects may be related. Several workers, particularly Alfred Jost of Paris, found that early destruction of the fetal gonads in experimental animals was followed consistently by development of the reproductive tract along female lines, even though some of the fetuses were in reality males.[10] This and other evidence leads to the view that an androgenic hormone elaborated by the fetal testis is required for maturation of the male reproductive system. Jost[11] and Wilkins[12] suggested, therefore, that a proportion of patients with "ovarian" agenesis may be derived from male embryos that suffered an early failure of development of the embryonal gonads.

When the skin biopsy method of detecting the sex of a patient at the cellular level began to find acceptance, the procedure was applied to subjects with "ovarian" agenesis independently by three groups.[13-15] The reports were based on a study of 15 patients; the nuclei had a male morphology in 11 cases and a female morphology in 4 cases. Several similar reports have appeared more recently, the most comprehensive being that of Grumbach, Van Wyk and Wilkins,[16] who found that 20 of 22 patients with gonadal dysgenesis, as the condition is now called, had male nuclei and were presumably chromosomal males. Carpentier, Stolte and Visschers reported male nuclei in vaginal smears from 10 of 12 patients with Turner's syndrome.[8] The tests performed in our laboratory also indicate that about 90% of gonadal dysgenesis subjects have nuclei of the male type. There is presumptive evidence, therefore, in support of the view that in man, as in experimental animals, the fetal testis and its androgenic hormones are necessary to counteract the inherent tendency of the fetus toward feminization. The cause of the failure of gonadal development and the reason for the greater susceptibility of male embryos remain to be explained.

While the cytological tests of sex are useful aids in the diagnosis of gonadal dysgenesis, especially in children, no emphasis in excess of this should be placed on these laboratory procedures. The patients must be regarded as females, clinically and socially, and feminization should be assisted during the appropriate age-span by œstrogens or by œstrogens and progesterone given in a cyclic manner. These patients have feminine psychosexual attitudes since they are regarded as females from birth by parents and associates, and since there is no inconsistency between feminine attitudes and the anatomy of the genitalia.[17]

2. *Male pseudohermaphroditism.* — Patients in this category have testes, but the remainder of the reproductive system is of an intersexual nature and varies from one patient to another.

The external genitalia may be near-male, with such defects as hypospadias and cleft scrotum, while at the other extreme the external genitalia would be considered normal for a female. A uterus and tubes are present in some cases. The testes are usually in the pelvis or inguinal canal and then have the histological structure of undescended testes, with failure of spermatogenesis. The breasts are likely to be undeveloped in adult life, although the secondary sex characteristics are markedly feminine in some instances (testicular feminization).

It has been our experience and the experience of others[18] that male pseudohermaphrodites consistently have male-type nuclei, and presumably XY-sex chromosomes. In view of the experimental studies on gonadectomized embryos and the results of cytological tests of sex in human gonadal dysgenesis, Jost's suggestion[11] that male pseudohermaphroditism is caused by a functional deficiency of the fetal testis with respect to androgen production seems tenable. The variability in feminization from one patient to another may be explained by differences in the degree of hormonal failure and by differences in time relationships. Simple hypospadias may be the result of a mild form of hormonal deficiency of the fetal testis. This hormonal hypothesis for the etiology of male pseudohermaphroditism receives additional support from patients who are intermediate between gonadal dysgenesis and male pseudohermaphroditism, as described by Grumbach, Van Wyk and Wilkins.[16]

Patients in the male pseudohermaphrodite group may present a particularly difficult problem in management. The cytological tests of sex are only diagnostic aids, helping to distinguish the male pseudohermaphrodite from the female pseudohermaphrodite when other findings are indefinite. If the patient is seen in infancy, before attitudes in the broad sexual sphere begin to develop, the structure of the external genitalia is the most important single guide to the more appropriate sex from the practical point of view. Later, the sex in which the patient has been raised is a factor of great importance, since a change of status introduces psychological and social difficulties. The timely warning of Wilkins *et al.*[19] against placing too much emphasis on theoretical considerations in arriving at practical decisions applies to errors of sex development generally, but is especially pertinent to the male pseudohermaphrodite group. The nature of the surgical and hormonal treatment that is so often necessary depends on the decision as to the more appropriate sex, this decision being based on all available findings with emphasis on the anatomy of the external genitalia.

3. *Female pseudohermaphroditism.*—With few exceptions, this condition results from hyperplasia of the adrenal cortex and excessive production of androgenic hormones in a female fetus. The anomalies are fairly consistent from one patient to another. The clitoris is enlarged, sometimes markedly so. The urogenital sinus, a normal fetal stage of development, persists and leads to the vagina and urethra some distance from the perineal opening. A uterus, tubes and ovaries are present. There may be dangerous crises in infancy caused by a deficiency of the non-androgenic hormones of the adrenal cortex, especially those concerned with electrolyte metabolism. In our experience all cases of hermaphroditism caused by adrenocortical hyperplasia have typical female nuclei, as is to be expected. The diagnosis can usually be made by finding a high level of urinary 17-ketosteroids and a skeletal age, on x-ray study, in advance of the chronological age. A cytological test of sex is not often required, but it may be a helpful confirmatory measure and has a definite diagnostic value when other laboratory results are borderline.

Until recent years, the progressive virilization that may occur in patients with the adrenogenital syndrome caused a proportion of them to live as males. Treatment with cortisone, as introduced by Wilkins and collaborators,[20, 21] was a major therapeutic advance. Small doses reduce the androgenic output of the adrenal cortex, acting apparently through the anterior pituitary, and virilization is brought under control. If these patients are treated sufficiently early in life, reasonably satisfactory orientation in the female direction now seems possible.

4. *True hermaphroditism.* — In this comparatively rare condition, the patient has both ovarian and testicular tissue and a variable morphology of the external and internal genitalia. In our experience, the nuclei are female in some patients and male in others, with the former predominating. It follows that the possibility of true hermaphroditism has to be borne in mind when a cytological test of sex is used as a diagnostic aid in hermaphroditism, regard-

less of whether the cells have male or female nuclei. The cytological tests are of little help in planning the management of a true hermaphrodite, since a patient with female nuclei may more appropriately live as a male[22] and vice versa. As in other errors of sex development, the best guide is external genital anatomy. The cause of true hermaphroditism is unknown although the possibility of there being an unusual sex chromosome complex, such as XXY in some cases, has been suggested.[23]

SUMMARY

Cytological tests of sex, based on the presence of sex chromatin in cells of females, have recently been developed. Cells in sections of epidermis, in smears from oral, cervical or vaginal mucosa, or neutrophils in a blood film may be used. In clinical practice these tests are useful diagnostic aids in gonadal dysgenesis ("ovarian" agenesis) and in some cases of hermaphroditism. The more appropriate sex from clinical and social points of view may be contrary to the type of sex chromosome complex (female XX or male XY), as inferred from the structure of resting nuclei.

In theoretical aspects of sex development, the application of cytological tests to patients with gonadal dysgenesis and male pseudohermaphrodites has yielded results supporting the view that androgenic hormones of the fetal testis are essential for normal maturation of the male reproductive system.

REFERENCES

1. SOHVAL, A. R., GAINES, J. A. AND GABRILOVE, J. L.: *Am. J. Obst. & Gynec.*, **70**: 1074, 1955.
2. BARR, M. L. AND BERTRAM, E. G.: *Nature, London*, **163**: 676, 1949.
3. BARR, M. L.: Modern trends in obstetrics and gynæcology, 2nd Series, ed. K. Bowes, Butterworth & Co. Ltd., London, 1955, Chap. 7.
4. MOORE, K. L., GRAHAM, M. A. AND BARR, M. L.: *Surg. Gynec. & Obst.*, **96**: 641, 1953.
5. EMERY, J. L. AND MCMILLAN, M.: *J. Path. & Bact.* **68**: 17, 1954.
6. MOORE, K. L. AND BARR, M. L.: *Lancet*, **2**: 57, 1955.
7. MARBERGER, E., BOCCABELLA, R. A. AND NELSON, W. O.: *Proc. Soc. Exper. Biol. & Med.*, **89**: 488, 1955.
8. CARPENTIER, P. J., STOLTE, L. A. M. AND VISSCHERS, G. P.: *Lancet*, **2**: 874, 1955.
9. DAVIDSON, W. M. AND SMITH, D. R.: *Brit. M. J.*, **2**: 6, 1954.
10. JOST, A.: *Arch. d'anat. micr. et morph. exper.*, **36**: 271, 1947.
11. *Idem*: *Gynéc. et obst.*, **49**: 44, 1950.
12. WILKINS, L.: The diagnosis and treatment of endocrine disorders in childhood and adolescence, Charles C Thomas, Springfield, Ill., 1950.
13. POLANI, P. E., HUNTER, W. F. AND LENNOX, B.: *Lancet*, **2**: 120, 1954.
14. WILKINS, L., GRUMBACH, M. M. AND VAN WYK, J. J.: *J. Clin. Endocrinol.*, **14**: 1270, 1954.
15. LIMA, M. C. *et al.*: *Rev. Ass. méd. brasil.*, **1**: 203, 1954.
16. GRUMBACH, M. M., VAN WYK, J. J. AND WILKINS, L.: *J. Clin. Endocrinol.*, **15**: 1161, 1955.
17. HAMPSON, J. L., HAMPSON, J. G. AND MONEY, J.: *Bull. Johns Hopkins Hosp.*, **97**: 207, 1955.
18. MARBERGER, E. AND NELSON, W. O.: *Bruns' Beitr. klin. Chir.*, **190**: 103, 1955.
19. WILKINS, L. *et al.*: *Pediatrics*, **16**: 287, 1955.
20. WILKINS, L. *et al.*: *Bull. Johns Hopkins Hosp.*, **86**: 249, 1950.
21. WILKINS, L. *et al.*: *J. Clin. Endocrinol.*, **11**: 1, 1951.
22. BROMWICH, A. F.: *Brit. M. J.*, **1**: 395, 1955.
23. GREENE, R. *et al.*: *Brit. J. Surg.*, **41**: 548, 1954.

RÉSUMÉ

Les épreuves de détermination cytologique du sexe basées sur la présence de chromatine du sexe dans les cellules de femelles ont été récemment mises au point. Les cellules des coupes d'épiderme, de frottis des muqueuses orales, cervicales ou vaginales, ou des neutrophiles du sang peuvent être employées. En clinique, ces épreuves peuvent aider à confirmer le diagnostic de dysgénésie des gonades (agénésie "ovarienne") et de certains cas d'hermaphrodisme. Le sexe le plus convenable du point de vue clinique et social peut être l'opposé de celui que révèle le complexe des chromosomes (femelles XX—mâles XY) que présente le noyau à l'état de repos. D'après les aspects théoriques du développement du sexe, l'application des épreuves cytologiques à des patients atteints de dysgénésie des gonades, et à des pseudo hermaphrodites mâles, a donné des résultats appuyant l'opinion voulant que les hormones androgènes des testicules foetales soient essentielles à la maturation normale du système de reproduction mâle. M.R.D.

DE-EPICARDIALIZATION: A SIMPLE, EFFECTIVE SURGICAL TREATMENT FOR ANGINA PECTORIS

Medical or surgical manœuvres designed to increase the blood supply to the human myocardium will require many years for conclusive evaluation. The relief of anginal pain, however, is a more immediately attainable objective. In this paper, there is described a safe procedure that is likely to increase the myocardial blood supply and which on conservative clinical trial relieves pain. The authors consider that it is worthy of further application to patients with coronary insufficiency in whom anginal pain is a dominant factor.

The surgical procedure is divided into three parts: (a) exposure of the epicardium and swabbing of the epicardial surface of the heart with 95% phenol; (b) pericardial poudrage with powdered talc; and (c) suture of the pulmonary lingula beneath the pericardium as a source of new blood supply. The writers feel that this operation is much simpler and less dangerous than some of the more complicated procedures for the same purpose, and equally effective.

To date, this operation has been carried out on 18 patients. All but four have had complete relief of pain; two had a recurrence of some angina about two months after operation, but the pain is subsiding in one. Two patients in whom the operation has been less than completely successful have psychiatric problems that render difficult the evaluation of the real anginal residuum.

The writers sound a warning of the obvious futility of attempting to improve the clinical condition of patients with very extensive myocardial damage. They stress that it serves no useful purpose to attempt to provide a blood supply to a scar. On the other hand, they indicate that no patients have been rejected from consideration for operation because of previous coronary occlusions, since more than half of these patients had suffered previous myocardial infarctions.

The rather dramatic relief of pain and the simplicity of the operation without surgical mortality suggests that this is a method worthy of continued trial.—D. E. Harken *et al.*, *Circulation*, 12: 955, 1955.

ACUTE LEUKÆMIA IN ADULTS TREATED WITH 6-MERCAPTOPURINE

D. M. WHITELAW, M.D., F.R.C.P.[C.],*
R. G. MOFFAT, M.D.,
W. H. PERRY, M.D., F.R.C.P.[C.] and
R. E. BECK, M.D., F.R.C.P.[C.],* *Vancouver*

THE ANALOGUES of the purine derivatives have taken their place beside the folic acid antagonists and the steroid hormones as useful agents in the treatment of acute leukæmia. The member of this group which has had the widest and most successful application is 6-mercaptopurine. It was synthesized by Elion, Burgi and Hitchings[1] at the Wellcome Research Laboratories and first used clinically by Burchenal *et al.*[2] Various reports[3-6] have appeared subsequently, including an extensive symposium[7] relating the results of a conference on 6-mercaptopurine held in December 1954 under the auspices of the New York Academy of Sciences. At that time reports were available on more than 186 cases occurring in adults and treated with the drug. The following relates our experiences with the use of 6-mercaptopurine in adults over the last two years.

Since October 1953 we have treated 29 cases of acute leukæmia with the drug alone or in combination. The youngest patient was 16 years old, the oldest 84. The age distribution is shown in Fig. 1. There were 13 females and 16 males. The interval between the onset of symptoms referable to the leukæmia and the inception of treatment is shown in Fig. 2. It will be noted that in 17 the symptoms had existed for less than three months. A few had had symptoms for almost a year before a diagnosis was made. In two instances the patients were followed up for a year prior to a definitive diagnosis, with repeated blood and marrow examinations before blast cells finally appeared. One case was discovered incidentally when the patient was admitted for treatment of prostatic hypertrophy with retention.

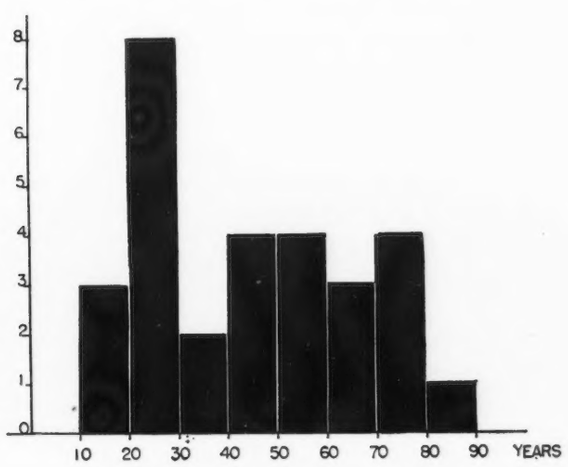


Fig. 1.—Age distribution of patients.

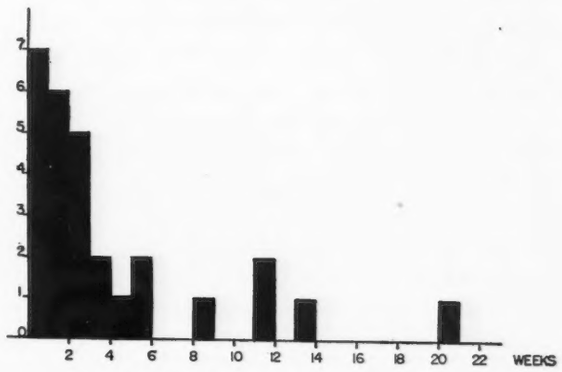


Fig. 2.—Interval between onset of symptoms and beginning of treatment.

The usual difficulties were experienced in categorizing the leukæmias with respect to cell type. Where transition had occurred between a chronic leukæmia and an acute process, the nature of the chronic was taken to indicate the nature of the acute. There were three cases of myeloblastic leukæmia following chronic granulocytic leukæmia and there was one case of lymphoblastic leukæmia following chronic lymphocytic leukæmia. One case of acute leukæmia occurred in a case of polycythæmia vera treated over a prolonged period with various agents including total body radiation and P^{32}. This case was presumed to be a myeloblastic leukæmia. Where an acute process was associated with large masses of tumour in lymph nodes, this was taken to be evidence of the presence of lymphoblastic leukæmia. There were seven such cases. In the remainder of the cases cellular morphology was the sole ground for differentiation. Six were considered to be myeloblastic and eight were classified only as blast cell leukæmias. No doubt these two groups included some cases which would have been designated as monocytic or monoblastic leuk-

*From the Department of Medicine of the University of British Columbia and the British Columbia Cancer Institute.

æmia in other laboratories. There were two examples of reticulum cell leukæmia.

The aim of treatment was to improve the clinical state of the patient, render the circulating blood free of blast cells and other abnormal cells, and correct the anæmia and thrombocytopenia. Clinical improvement was considered complete if the patient returned to active business or household activities without symptoms; fair if he returned home to partial activity; and slight if bleeding stopped and general well-being improved but he was unable to leave hospital. Hæmatological remission was considered to be complete if anæmia was corrected without transfusion, platelet count returned to normal and blast cells disappeared from the circulating blood. Not enough serial bone marrow observations were made to know whether the complete remissions included a return to normal of the bone marrow picture. Hæmatological remission was considered to be partial if the total white count was reduced at the expense of the blast cells but recovery from anæmia or thrombocytopenia or both was partial or negligible.

The usual initial dose of 6-mercaptopurine was 150 mg. daily given in one dose by mouth in the morning. Alterations in dosage were made in agreement with hæmatological findings, an effort being made to achieve a constant maintenance dose sufficient to keep the proliferative activity of the blasts in check without producing thrombocytopenia or severe neutropenia.

RESULTS

Nineteen cases were treated with 6-mercaptopurine only for a period of 14 days, which was judged to be a sufficiently long period for assessment. The results are tabulated in Table I. Of the 10 who made no clinical response whatever, seven lived less than two weeks and died presumably before the drug could be thought to have its maximum effect.

Eight cases were treated with 6-mercaptopurine and adrenocorticotrophin (ACTH) or cortisone in combination. The results are set forth in Table II. The first case made two separate responses to 6-mercaptopurine, 27 weeks apart, each attended with thrombocytopenia which returned to normal when 6-mercaptopurine was stopped and cortisone substituted. The effect of the cortisone in this case is not clear-cut. The second case has had an excellent response. It is very difficult to separate the effects of 6-mercaptopurine and of cortisone, which she has been receiving continuously. Her spleen remains palpable and her platelet count, while not in the bleeding range, has not quite returned to normal. The third patient probably owes most of her remission to 6-mercaptopurine, although the clarity of the response was somewhat obscured by initial treatment with ACTH. In six of these cases the ACTH or cortisone was given because the platelet count was at an alarmingly low level, and there was a hæmorrhagic diathesis. The results of combined therapy do not permit a conclusion as to whether in those cases which improved the improvement was due to an alteration in the disease due to the 6-mercaptopurine or to an inhibition of bleeding due to the steroids with a stimulation of normal hæmatopoiesis.

TABLE I.

CASES TREATED WITH 6-MERCAPTOPURINE ALONE

Patient	*Clinical response*	*Hæmatological response*	*Duration of life weeks after onset of treatment*
E.R.	complete	complete	54 (still alive)
M.Br.	complete	complete	38 (still alive)
R.S.	complete	partial—a few blasts	22
V.A.	complete	partial—a few blasts	11
L.C.	fair	complete	16
J.K.	fair	partial	33
Y.C.	fair	partial	25
R.D.	fair	partial	18
A.O.	slight	partial	20
N.R.	slight	partial	15
G.B.	0	partial	2
D.C.	0	partial	8
V.M.	0	partial	2
M.Bi.	0	partial	5
A.M.	0	0	11
M.N.	0	0	1
R.G.	0	0	1
H.C.	0	0	2
M.T.	0	0	1
H.W.	0	0	1
R.O.	0	0	3 (still alive)

TABLE II.

CASES TREATED WITH 6-MERCAPTOPURINE AND ACTH OR CORTISONE

Patient	*Clinical response*	*Hæmatological response*	*Duration of life weeks after onset of treatment*
M.Ba.	complete	complete	33 (still alive)
D.F.	complete	partial	35 (still alive)
J.B.	complete	partial	19
D.K.	fair	partial	28
C.P.	fair	partial	13
J.L.	0	partial	17
W.S.	0	partial	2
A.G.	0	0	1

One case appeared to respond to 6-mercaptopurine after failing to do so to ACTH. One case, in which a slight apparent response to 6-mercaptopurine had gone on to escape from control, had a marked response of total white count and circulating blast cells but no clinical improvement after the administration of aminopterin. One patient treated with 6-mercaptopurine appeared to make an additional mild response when cortisone was added.

In those cases which showed hæmatological changes due to 6-mercaptopurine the change usually began to appear three to ten days after the onset of therapy and often achieved its maximum in 14 or 21 days. In two cases maximum response was delayed until about 50 days after the beginning of treatment. The total dose required to produce a maximal response varied from 700 mg. to 4,200 mg. and averaged about 2,000 mg. Total administered dosage depended in part, of course, on the duration of life. It reached 27.5 g. in one patient now dead, and has reached 16 g. in one survivor.

We have noted no clinical toxic effects which we could attribute to the drug as distinct from the disease. No skin lesions, gastrointestinal or nervous symptoms or other clinical signs or symptoms have been observed. Thrombocytopenia which developed during treatment and was relieved by stopping the drug or reducing the dose was noted in five patients. One of these showed the phenomenon on two separate occasions. Where the platelet count dropped to alarmingly low levels cortisone was administered. In two patients the daily dose of 6-mercaptopurine exceeded 150 mg. per day. One patient received 400 mg. per day for 10 days without enhanced effect. One received 250 mg. a day, also without added effect.

The correlation between type of cell and response to therapy is illustrated in Table III. It will be seen that the cases definitely recognizable as myeloblastic, because they followed chronic granulocytic leukæmia or polycythæmia, made the poorest response. Those with masses of lymphoid tissue did best as a group. Certain of the undifferentiated blast cell leukæmias, however, made excellent responses.

In general, those with total white counts in excess of 15,000 made a better response to treatment, both in regard to clinical and to hæmatological improvement. Only one failed to show some alteration of the total white count and in this case the dosage was probably inadequate.

TABLE III.

Type of leukæmia	*Patient*	*Clinical response*	*Hæmatological response*	*Duration of life—weeks after onset of therapy*
Myeloblastic following chronic granulocytic	Y.C.	fair	partial	25
	D.C.	0	0	8
	M.T.	0	0	1
Myeloblastic following polycythæmia vera	V.M.	0	partial	2
Myeloblastic	M.Ba.	complete	complete	33 (still alive)
	A.M.	0	0	11
	M.N.	0	0	1
	C.P.	fair	partial	13
	H.W.	0	0	1
	W.S	0	partial	2
Reticulum cell	A.G.	0	0	1
	J.K.	fair	partial	33
Lymphoblastic after chronic lymphocytic	J.L.	0	partial	17
Lymphoblastic with tumours in lymph nodes	M.Br.	complete	complete	38 (still alive)
	V.A.	complete	partial	11
	J.B.	complete	partial	19
	L.C.	fair	complete	16
	R.D.	fair	partial	18
	A.O.	slight	partial	20
	N.R.	slight	partial	15
	R.S.	complete	partial	22
Blast cell	M.B.	0	partial	5
	G.B.	0	partial	2
	H.C.	0	0	2
	R.G.	0	0	1
	D.K.	fair	partial	28
	D.F.	complete	partial	35 (still alive)
	R.O.	0	0	3 (still alive)
	E.R.	complete	complete	54 (still alive)

Of the 15 patients with clinical response of any degree, seven had no initial enlargement of lymph nodes. Of the remainder who had initial enlargement of lymph nodes, the nodes were unchanged in two, decreased in size in five, and had disappeared in one. There were five cases with no initial splenomegaly. Of the 10 initially enlarged spleens, four showed no change in size following treatment, two showed a decrease in size, and in four patients the spleen became no longer palpable. Those in whom the spleen showed the greatest regression received both 6-mercaptopurine and cortisone.

DISCUSSION

Acute leukæmia in adults is well known to present a difficult problem in therapy. Transfusions, antibiotics and other non-specific measures have only slight effect in altering the course of the disease. Antifolic acid agents, while effective in prolonging life in children, are disappointing in the adult and are attended with danger and discomfort from the toxic effects. ACTH and cortisone are also more effective in children than in adults; they have their greatest use in lymphoblastic proliferations and are less helpful in myeloblastic disease. In the latter they sometimes appear to aggravate the condition.[8]

6-Mercaptopurine appears to us to be more effective than either steroids or antifolic acid agents when used alone in adult acute leukæmia, even although, as these patients illustrated, it is only occasionally dramatically helpful. It has the advantage of being relatively non-toxic and does not add to the discomfort of the patient.

Combinations with antifolic acid drugs have not been used in this series except in one instance. Combination with steroids has sometimes assisted in the attack on the disease itself, and the steroids may control hæmolytic anæmia and may prevent hæmorrhage by direct effect on the vasculature at a time when the platelet count is low.

Where patients have survived for more than two weeks from the onset of treatment, they have almost always shown a reduction in total white cell count and in the number of circulating blast cells. This change has not always been accompanied by any improvement in the patient's clinical state. About half of all patients treated have shown some clinical response, ranging from slight to complete. The use of 6-mercaptopurine alone or in combination has produced in about one-quarter of the cases complete clinical remission ranging in duration from 3 to 12 months. This result is somewhat better than that reported by other authors for adult leukæmia.

SUMMARY AND CONCLUSIONS

1. Twenty-nine adults with acute leukæmia have been treated with 6-mercaptopurine alone or in combination.

2. The drug was used in daily doses of 150 mg. to begin with, and an effort was made to find a suitable maintenance dose.

3. No significant toxic effects were noted from the drug except depression of the platelet count.

4. Most of the patients who lived longer than two weeks showed a reduction in the total circulating white cell count and in the number of circulating blast cells.

5. About half of the treated cases showed a clinical response, and in half of these the response was complete and lasted for a variable period of from 3 to 12 months.

6. The addition of cortisone is sometimes helpful in influencing the course of the disease itself and in controlling hæmolytic anæmia or the hæmorrhage associated with thrombocytopenia.

REFERENCES

1. ELION, G. B., BURGI, E. AND HITCHINGS, G. H.: *J. Am. Chem. Soc.*, **74**: 411, 1952.
2. BURCHENAL, J. H. *et al.*: *Blood*, **8**: 965, 1953.
3. GENDEL, B. R. AND PLITMAN, G. I.: *Clin. Res. Proc.*, **2**: 133, 1954.
4. HALL, B. E. *et al.*: *Stanford M. Bull.*, **11**: 237, 1953.
5. BURCHENAL, J. H. *et al.*: *Am. J. M. Sc.*, **228**: 371, 1954.
6. FOUNTAIN, J. R.: *Brit. M. J.*, **1**: 1119, 1955.
7. Symposium on 6-Mercaptopurine: *Ann. New York Acad. Sc.*, **60**: 183, 1954.
8. WINTROBE, M. M. *et al.*: *Ann. Int. Med.*, **41**: 447, 1954.

RÉSUMÉ

Un groupe de 29 malades adultes atteints de leucémie aiguë reçurent du 6-mercaptopurine seul ou en combinaison avec d'autres médicaments. Ce nouvel agent thérapeutique fut administré à raison de 150 mg. par jour comme dose d'attaque. On chercha à déterminer une dose de soutien convenable. La seule manifestation importante de toxicité fut une diminution du taux des plaquettes. La plupart des malades qui survécurent au delà de deux semaines subirent une diminution du nombre de leucocytes en général et de cellules primitives dans le sang périphérique. Environ la moitié des cas traités montrèrent une amélioration clinique et la moitié de ceux-ci s'améliorèrent d'une manière complète pour une période variant de 3 à 12 mois.

La cortisone peut quelquefois influencer favorablement le cours de la maladie, modifier l'anémie hémolytique ainsi que les manifestations hémorragiques résultant de la thrombocytopénie. M.R.D.

COSTOPHRENIC SEPTAL LINES IN PULMONARY VENOUS HYPERTENSION

One of the interesting and curious findings in roentgenograms of the thorax of patients with mitral heart disease has been the presence of fine, short, straight linear densities in the costophrenic regions. Although these lines are not specific for mitral heart disease, their preponderant presence in this condition stimulated a review of the roentgenograms at the Mayo Clinic of 152 surgical cases of mitral stenosis.

The lines with which this paper deals have been variously described as "lines B of Kerley", "horizontal lines", "linear x-ray shadows", and "septal lines". They are reported to occur occasionally in association with a number of conditions including acute and chronic pulmonary congestion, severe mitral stenosis, pulmonary hæmosiderosis in the absence of congestion, pneumoconiosis, diffuse pulmonary fibrosis and lymphogenous pulmonary metastasis. The lines usually are seen best in the costophrenic angles, and better on the right side than on the left. The posteroanterior view is the best, but occasionally an oblique or lateral view will show them to advantage. They run perpendicular to the pleural surface and vary in number from 2 or 3 to 10 or 15. They extend from 2 to 4 inches upward from the costophrenic angle and vary in thickness from a hairline to 2 mm. in diameter. Often they are spaced from 0.5 to 1 cm. apart. They may remain unchanged after mitral commissurotomy, or they may disappear.

There have been various interpretations of the pathogenesis of these lines, but most authors relate them to pulmonary hypertension. The investigations of these writers indicate that for practical purposes, these lines occur only among patients having pulmonary venous hypertension associated with pulmonary arterial hypertension, and particularly in mitral heart disease, but not in pulmonary hypertension confined to the pulmonary arterial side.

The authors consider that the finding of costophrenic septal lines on a roentgenogram is a valuable roentgenological sign strongly suggestive of mitral stenosis.—A. J. Bruwer, H. F. Ellis Jr., and J. W. Kirklin: *Circulation*, 12: 807, 1955.

CARCINOMA OF THE BREAST*
THE ASSESSMENT OF RESULTS

R. S. MURLEY, M.S., F.R.C.S.(Eng.),†
London, England

IT MAY SEEM remarkable that, in a disease so common as carcinoma of the female breast, there is still so much uncertainty about the merits of different treatments. But the evaluation of results is difficult: it was difficult enough when the available methods of treatment were few in number, and it is still more difficult today when so many surgical, radiotherapy and other techniques are practised. Few of the published figures will stand up to really critical scrutiny, and this includes many of those emanating from notable authorities.

Essential to the evaluation of any therapy is a knowledge of the course of the untreated disease, but our information on this subject is inevitably somewhat meagre and misleading. The best known paper on untreated breast cancer was by Greenwood,[2] but it is less widely appreciated that Greenwood's figures were derived from other papers describing cases which were not treated for the simple reason that they were untreatable. It will be recalled that Greenwood concluded that the expectation of life for a woman with untreated breast cancer was 3.25 years. He went on to say that treatment under "average conditions" would secure a life expectancy of 5.74 years, and under the "best conditions", of 12.93 years. It is odd that a statistician of Greenwood's eminence should have drawn such naive conclusions from the available figures. He seems not to have recognized that the "best conditions" may have corresponded with the most favourable growths, and that the results were more closely related to the aggressiveness of the tumour and resistance of the host than to the conditions of treatment.

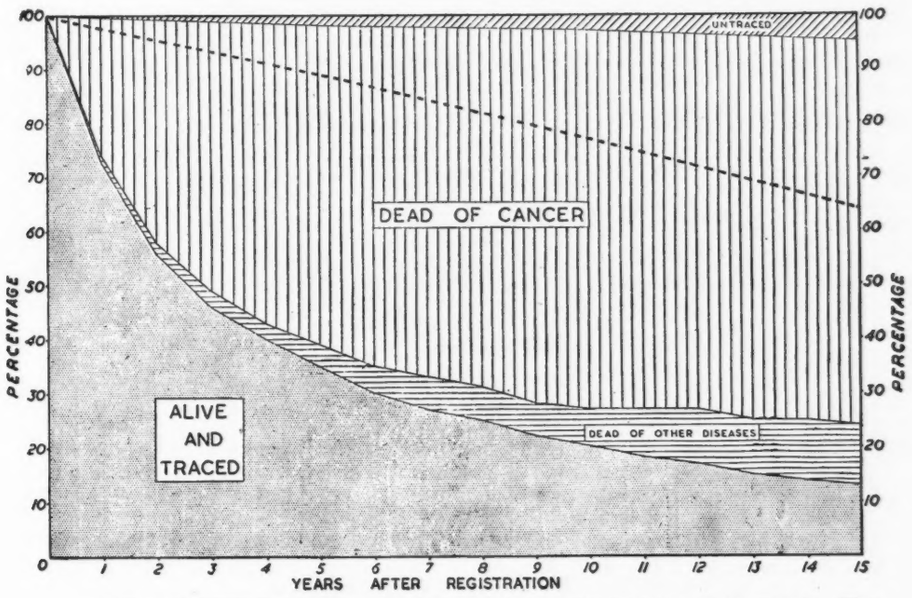


Fig. 1.—Percentages dead and alive based on whole series (1-15 years). (The dotted line indicates the expected survival of a normal group with similar age distribution based on Life Table for 1931.)

The apparently good results of treatment are, for the most part, the result of good selection, but this selection is commonly not recognized by the clinician. Perhaps the worst offenders are those surgeons who apply stricter and stricter standards of operability and then argue the general merits of a particular operation from their highly selected material.

The intention here is to emphasize the more fundamental factors which cannot be ignored in the proper appraisal of any treatment of breast cancer. Any published series must include all possible information about the catchment area of the hospital concerned, and about all those factors which may influence its selection of patients. Three further points deserve especial emphasis:

*Read at the Conjoint Annual Meeting of the C.M.A., B.M.A. and O.M.A., Toronto, June 1955.
†Surgeon, Royal Northern Hospital.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

1. The over-all survival figures for all cases seen.

2. The age distribution of the entire series and, where possible, the adjustment of survival figures to allow for age differences.

3. The use of a reasonably simple, carefully applied and internationally agreed system of clinical staging.

graphs from comparable series of cases treated by different methods, and thus to compare results. In practice, there are so many differences between most series that rarely are such comparisons possible. However, greater care and uniformity in the compilation of results would allow some useful observations to be made on these lines.

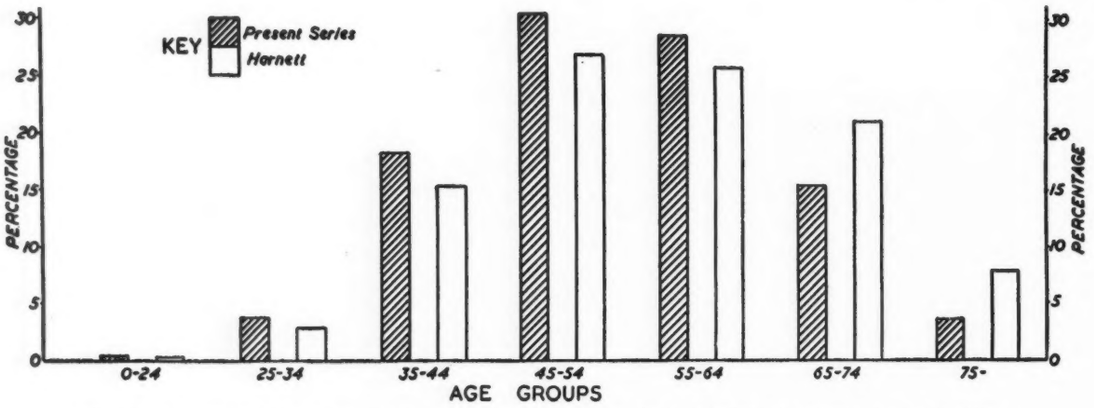


Fig. 2.—Age distribution of present series compared with that of Harnett ("Cancer in London").

Over-all Survival.—It is an advantage to give the over-all survival figures year by year throughout the entire period of follow-up, and not simply at arbitrary intervals of three, five and ten years. This information can be well brought out on a graph, as in Fig. 1 which is based upon a series of 1,044 cases registered at St. Bartholomew's Hospital, London, in the years 1930-1939 inclusive.[5] The lowest line on this graph represents the percentage survival year by year throughout the period of follow-up. All deaths are assumed due to cancer, and untraced patients are assumed dead. A second line on the graph represents the percentage survival after subtracting those deaths which were believed due to intercurrent disease. Any freedom to manipulate this latter figure would materially influence the survival rate and that is why only over-all survival rates are acceptable. Also shown in the same figure is a line representing the anticipated survival rate of an unselected group of women of similar age distribution to this series. The relative success of treatment would be graphically shown by approximation of the actual survival rate to this last line.

The over-all pattern of survival in this particular series is therefore shown in Fig. 1. In theory it should be possible to superimpose

Age Distribution.—The age distribution of a series may greatly influence the crude survival figures. In Fig. 2 is a graphical comparison between the Bart's series already referred to and those cases recorded by Harnett.[3] It is at once apparent that the Bart's series was a younger and more favourable one, a not unexpected state of affairs when one recalls that a larger proportion of more aged sufferers went to the municipal hospitals at that time. In comparing different methods of treatment it is important to allow for these age differences. A perfectly valid method, used by McWhirter,[4] is to show the five-year survival rates for women under 65, and the ten-year rates for those under 60, thus limiting the number of deaths due to intercurrent disease. There are various ways of making allowance for age differences, and a useful method is that of Berkson.[1] In explanation of this method it will suffice to say that, for any group of people of known age, it is possible to calculate the number who may be expected to be alive after a given time, assuming that they are subject to the normal mortality experience of the whole country (as expressed in the Registrar-General's Life Tables). By making such an adjustment for age differences there is no need to exclude any cases, as must inevitably occur in McWhirter's method.

TABLE I.

ADJUSTMENT OF SURVIVAL RATES BY METHOD OF BERKSON

SURVIVAL RATES		
Crude rate = $\frac{\text{No. alive and traced}}{\text{No. originally treated}} \times 100$		
Adjusted rate = $\frac{\text{No. alive and traced}}{\text{Expected No. alive}} \times 100$		
EXAMPLE		
	10-yr. survival rates	
Stage I cases:	*Crude*	*Adjusted*
Ages 0-44	45%	47%
Ages 65+	20%	45%

The difference between crude and adjusted survival rates is shown in Table I. The crude rate is expressed as the number alive and traced after a given period of time, divided by the original number of patients and multiplied by one hundred. In the calculation of the adjusted survival rate the number alive and traced is divided by the anticipated number surviving instead of the original number of patients. This method is objective and entirely satisfactory, provided the groups considered are sufficiently large to even out chance fluctuations in the number of deaths due to intercurrent disease. An example of the difference between crude and adjusted rates is included in Table I, but in actual practice the age differences between two groups of cases would not be so great as those shown here.

Clinical Staging. – Any system of staging breast cancer must be primarily clinical if a comparison is to be made of all cases. Patients whose axillæ are not dissected, or those in whom the disease is considered inoperable, cannot be classified on the same pathological basis as the patient who has a radical mastectomy. This point is sometimes forgotten by those who cavil at the seeming inaccuracies of clinical staging. However, a reasonably simple and generally applicable system of clinical staging is vitally important, and it is regrettable that no wider measure of agreement has been achieved.

In the Bart's series the so-called "Manchester" system was used (Table II). It is not intended to argue the merits of this system over other methods, but merely to emphasize its possibilities and limitations. Now unfortunately the size of tumour and length of history cannot be satisfactorily incorporated in any practical system of clinical staging. For this reason a single stage may include patients with widely different types of disease. An intelligent woman with a lump 5 cm. in diameter, noted for two weeks, and another woman with a 2 cm. tumour noted for six months, may both be in Stage I; but, other things being equal, there is little doubt that the prognosis is worse for the first woman who has a larger and more rapidly growing tumour.

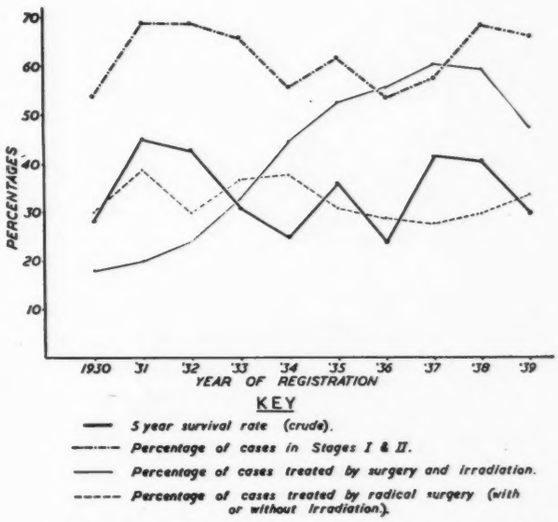


Fig. 3.—Crude five-year survival rates for cases registered each year, compared with percentage of cases in clinical Stages I and II.

TABLE II.

MANCHESTER STAGING

Stage I.	Tumour confined to breast and no deep fixation. If skin involvement is present it must be no larger than the primary and in direct continuity with it.
Stage II.	As in Stage I, but there are mobile and enlarged axillary glands on same side.
Stage III.	Primary growth fixed to pectorals but not chest wall, or more extensive skin involvement (but not wide of the breast). There may or may not be palpable axillary glands on same side.
Stage IV.	The growth has extended beyond the breast and axillary glands. Fixation of axillary glands or fixation of primary to chest wall places tumour in this stage.

N.B.—Professor McWhirter's locally advanced group includes all those in Stage III and about half those in Stage IV.

It is well known that accurate assessment of the axilla is influenced by the fatness, ticklishness and sweatiness of the patient. At least one-quarter of those placed in Stage I have cancerous axillary glands, and an almost equal proportion of those placed in Stage II may subsequently be found to have cancer-free glands.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

Two expert observers can be shown to disagree with each other in a fair proportion of cases and, if set to examine the same group of patients a second time, will disagree with their own previous assessment about as frequently as with each other. This element of inter-observer and intra-observer error is insufficiently appreciated by some surgeons.

In Stages III and IV many have pressed for further subdivisions. Simple division into IIIa and IIIb, according to whether the axillary glands are thought to be free or involved, can be done without disturbing the system. Some advocate separation of cases with skin involvement from those with adherence to the pectoral fascia, but this is probably an unwise elaboration and we must beware of over-sophistication in staging.

Such comments as have here been made on the Manchester system can be applied to other methods. A system of staging which would satisfy certain experts and super-specialists is sure to be useless on a large scale, and simplicity is essential. With all the admitted difficulties of clinical staging, and despite the problems of observer error, it is interesting to note that it bears such a close relationship to survival. This is well brought out in the Bart's series in which the crude survival rate year by year (for all cases registered each year from 1930 to 1939) is almost exactly paralleled by the percentage of Stage I and II cases registered each year (Fig. 3). Also shown in Fig. 3 is the percentage of cases treated by radical surgery, and the percentage treated by combined surgery and irradiation. The steady increase in combined methods of therapy was not associated with any apparent increase in survival rate, and there can be little doubt that the intrinsic malignancy of the tumour and resistance of the host are the most important factors influencing survival.

Another important factor which may affect survival figures is the strictness of clinical staging. In Table III is a hypothetical but valid example of the staging of 1,000 cases. It is assumed that 331 of these patients survived five years and that the original staging was done independently by two observers. The number of cases allocated to each of the four stages by the two observers and the percentage five-year survival are shown. If it be further assumed that the second observer staged these cases 20% more strictly, then he might transfer the more doubtful 20% of Stage I into Stage II, and so on through the stages. Although the over-all survival rate is the same for both observers, the second observer is able to show better rates in the individual stages. In comparing different series of cases, variations in survival rate may be due to this factor and to basic differences in the material studied, rather than the different methods of treatment.

TABLE III.

THE EFFECT OF DIFFERENT STANDARDS IN STAGING ON FIVE-YEAR SURVIVAL

Staging of 1,000 breast carcinoma cases by two observers.
Hypothetical example of effects of a second observer, with stricter standards, transferring cases from Stage I to II, II to III, III to IV.

OBSERVER A				OBSERVER B			
Stage	*No.*	*Surv.*	*%*	*Stage*	*No.*	*Surv.*	*%*
I.	300	195	65%	I.	240	163	68%
II.	300	105	35%	II.	300	123	41%
III.	300	30	10%	III.	300	42	14%
IV.	100	1	1%	IV.	160	3	2%
	1,000	331	33%		1,000	331	33%

One of the reasons why a study was made of the Bart's series already referred to was that it contained a large number of cases treated by conservative surgery. The material was unique in that it enabled a comparison of conservative and more radical methods to be made in one institution during the same period of time. The comparison of simple surgery with more orthodox methods is of some interest, and certain as-

TABLE IV.

INCIDENCE OF POST-OPERATIVE ŒDEMA

	Total No. of Cases	*Cases of Œdema*	
		No.	*%*
All surgery	734	87	12
Simple surgery*	229	11	5
Radical surgery*	338	48	14
Modified radical surgery*	167	28	17
Surgery with irradiation	446	52	12
" without "	288	35	12
Radical and modified radical surgery:*			
With primary healing	278	35	13
" sepsis or sloughs	84	20	24
" hæmatoma	65	13	20

*With or without irradiation.
There were 78 cases with no record of the healing of the radical wound.

pects of this comparison are shown in Fig. 4. Although the simple surgery group includes those treated by simple mastectomy, in more than 50% of these cases the operation consisted of local excision of the tumour combined with irradiation. Many of the latter patients were under the care of Mr. Geoffrey Keynes. The term "modified radical surgery" is used here to describe simple mastectomy plus axillary dissection without removal of the pectoral muscles. This operation was done in the course of a research project into the effects of irradiation on the primary growth and axillary glands. In Stage I the five-year survival rate is highest for simple surgery and lowest for modified radical surgery, but at ten years this trend is reversed. However, there is little to choose between these results. It should be pointed out that the slight difference between five- and ten-year survival with modified radical surgery is due to the small number of cases as well as the fact that only one patient died during the second five years. In Stage II there is really no difference in the results.

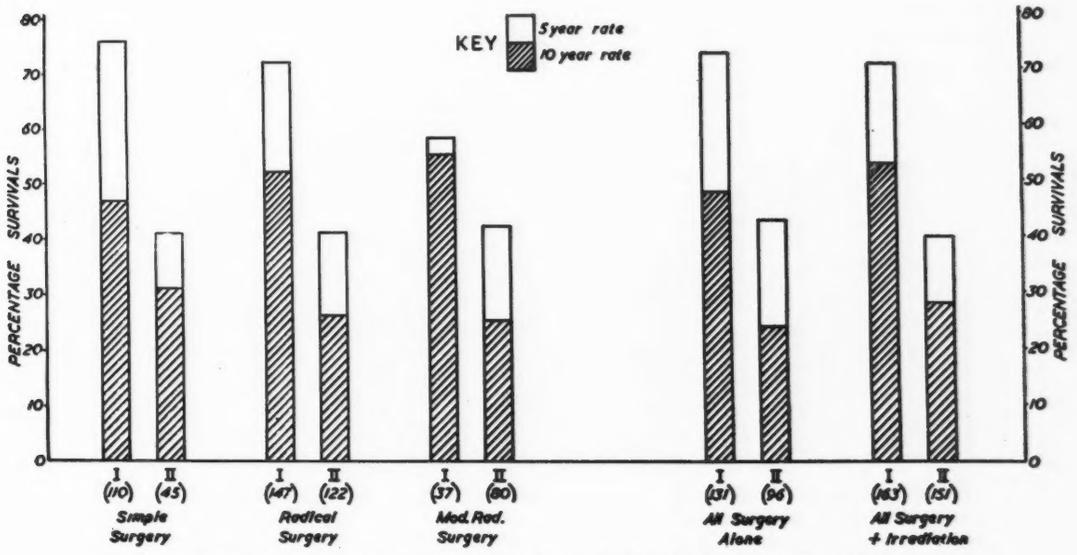


Fig. 4.—Adjusted five- and ten-year survival rates for surgical cases (Stages I and II only). (Note: The figures in parentheses are the numbers of cases from which the survival rates are calculated.)

The comparison of all types of surgery alone and all surgery plus irradiation shows that the five- and ten-year results are much the same. But these last results should not be taken too baldly at their face value, since there is some selection between these last two groups, to the detriment of irradiation. Radiotherapy tended then, as now, to be used more widely in the less favourable cases. One is tempted to conclude that different methods of treatment can be equally effective in controlling disease in Stages I and II. It must be frankly recognized, however, that these results could also be interpreted as showing that these methods of treatment are equally ineffective in prolonging life. The results in Stages III and IV are not shown in Fig. 4, but in advanced cases the arguments in favour of the less radical approach are even more compelling.

So far only the more quantitative aspects of treatment have been dealt with, and it is regrettable that survival rate is often considered to the exclusion of other factors. Two of the more important of these considerations are the mutilation and morbidity of the more extensive operations. The incidence of œdema of the arm is shown in Table IV. It was three times as high in those patients whose axillæ were dissected. Whereas it might seem from this table that radiotherapy was not a contributory factor, the comparison is not a just one since the combined surgery and irradiation group included a larger proportion of patients treated by simple surgery in whom the incidence of œdema would inevitably be lower. Œdema of the arm is also more common in those patients whose wounds fail to heal by first intention.

CONCLUSIONS

The object of this paper is to draw attention to some of the more important factors which are commonly ignored in the assessment of results. If all published series included details of the over-all survival rate; if proper adjustment were made for age differences and, above all, if a simple system of clinical staging were internationally agreed on and used, we would be in a much better position today to assess the worth of the weapons we use. Time may show the true value of modern therapy, but it is likely that a more critical evaluation of the published work in the light of the above factors would lead more surgeons to do fewer radical operations in the majority of cases of breast cancer. Until the day when the chemotherapy of cancer is a practical proposition, surgeons should pay more careful attention to both the quantitative and qualitative merits of the operations they perform.

SUMMARY

The paper deals with the evaluation of results in breast cancer. Reference is made to some of the misleading information on untreated disease and it is emphasized that good results are commonly the result of favourable selection. Various factors fundamental to the valid comparison of results are considered. Particular emphasis is laid on: (1) over-all survival figures; (2) adjustment of results for age differences; (3) the need for a simple and uniform system of clinical staging. These points are illustrated by reference to a carefully analyzed series of cases.

Some of the problems of clinical staging are referred to; in particular, observer error and the strictness of staging. Despite these problems, clinical staging bears a closer relationship to survival than any other single factor. Assessed in terms of survival, there is little to choose between various types of operation in Stages I and II. In more advanced cases radical surgery is undesirable and harmful. Apart from mere survival after treatment, the qualitative aspects of therapy are duly emphasized. Mutilation and morbidity are mentioned and, in particular, the frequency of œdema of the arm after axillary dissection and the complicated healing of wounds. A final plea is made for wider practice of more conservative surgery in most cases of breast cancer.

This paper is based upon a joint study made at St. Bartholomew's Hospital, London, with my colleagues I. G. Williams, F.R.C.S., F.F.R., director of radiotherapy, and M. P. Curwen, M.A., medical statistician. I am deeply indebted to both of them for their collaboration. My thanks are due to the Editor of the *British Medical Journal* for permission to publish Figs. 1, 3, and 4 and Table IV. Finally, I am most grateful to Mr. N. K. Harrison and the photographic department, St. Bartholomew's Hospital, for preparing the illustrations.

REFERENCES

1. BERKSON, J., *In*: Carcinoma and other malignant lesions of the stomach, W. Walters *et al.*, W. B. Saunders Company, Philadelphia, 1942.
2. GREENWOOD, M.: Ministry of Health Reports on Public Health and Medical Subjects, No. 33, H. M. Stationery Office, London, 1926.
3. HARNETT, W. L.: *Brit. J. Cancer*, **2**: 212, 1948.
4. MCWHIRTER, R.: *Brit. J. Radiol.*, **38**: 128, 1955.
5. WILLIAMS, I. G., MURLEY, R. S. AND CURWEN, M.: *Brit. M. J.*, **2**: 787, 1953.

ERYTHROBLASTOSIS AND HÆMOLYTIC TRANSFUSION REACTIONS INVOLVING "UNUSUAL" BLOOD GROUP FACTORS

CECIL HARRIS,* B.Sc., M.D.(Glas.), M.R.C.P.(Edin.), *Montreal*

THE LAST DECADE has seen dynamic expansion of our knowledge in the field of blood groups. It has become generally appreciated that, outside of the ABO blood group system, most attention must be paid to the "Rh factor". What deserves wider recognition is that the Rh factor is not a single entity, but a complex of antigens of varying importance.

*Medical Director, Province of Quebec Depot, Canadian Red Cross Blood Transfusion Service.

There are, furthermore, other and completely separate blood group factors, the understanding of which may be prejudiced by the terminology used by experts in the field. The essential points concerning these less well-known factors should be general knowledge because they are assuming an importance which is steadily increasing.

This is a result of the frequency with which blood transfusion, particularly of a single bottle, is now being used in all branches of medical practice. A single transfusion, carefully matched as to ABO group and the main factor D of the Rh complex, may suffice to sensitize the patient to some other factor and thus to pave the way for a hæmolytic reaction during a subsequent (and, perhaps, more urgently required) transfusion; equally it may, should a woman be involved, lead to erythroblastosis in the child of a future pregnancy.

It is therefore considered that a résumé of our present knowledge would not be amiss, and three case reports are given to illustrate some of the points raised.

ANTIBODIES

It is paradoxical that, while we speak most often of the various blood groups, these would be of no importance (and, indeed, would be unknown) if it were not for the existence of the appropriate antibodies. The most obvious demonstration of this fact is the dominance, historically and clinically, of the ABO blood group system which owes its unique position to the fact that, unlike (for practical purposes) all other systems, the appropriate antibodies occur naturally and consistently.

In 1900-01, the A, B, AB and O blood groups were differentiated by means of the antibodies normally present, especially the anti-A of group B individuals and the anti-B of group A individuals. Despite the revelation that different blood factors existed, it was not until 1927 that the MN and P "sub-groups" were recognized, their recognition depending upon the production of specific antibodies by rabbits given repeated injections of human blood.

Continuous work along these lines permitted the description in 1940 of an antibody developed by rabbits immunized by repeated injections of the blood of rhesus monkeys. This antibody agglutinated not only monkey red cells, but also the cells of about 85% of white people. This antibody was then shown to be similar in its properties to those found in the sera of some patients who had suffered hæmolytic reactions after transfusions of blood compatible as regards the ABO system; thus the term "Rh factor" came into being.

The next step was the demonstration that the same Rh antibody was present in the blood of a patient who had been delivered of a stillborn fetus and who had had a hæmolytic reaction after transfusion of blood from her husband; the patient's serum was found to agglutinate the red cells of her husband and also those of about 80% of random blood donors. That blood group incompatibility plays a part in the etiology of erythroblastosis fœtalis was thus established.

Further work along the same lines and involving hæmolytic reactions as well as instances of erythroblastosis has led to the concept that the Rh factor is actually a complex blood group system comprising at least three closely linked (in a genetical sense) pairs of genes, Cc, Dd and Ee. One or other of each pair of genes may be inherited from each parent but in combination fixed by ordinary genetical laws.

TECHNICAL ADVANCES

Subsequent developments have largely depended upon the introduction of new techniques for the detection of antibodies. The original work described above involved saline suspensions of the red cells under examination. In 1944 the so-called "blocking" or "incomplete" form of antibody was described. This does not agglutinate red cells suspended in saline, but cells so exposed cannot subsequently be agglutinated by antibody active with saline suspensions; the action of the ordinary form of antibody is thus "blocked". Incomplete antibody was later found to be capable of causing agglutination of red cells suspended in a protein or colloid medium, one of the most effective being 20% albumin.

At about the same time the value was demonstrated of an anti-globulin serum for detecting "incomplete" antibodies; this serum is prepared by immunizing rabbits with injections of human globulin. This test depends upon reaction with the globulin part of antibody attached to sensitized red cells; it is thus unconnected with the specificity of the antibody.

The Coombs test (as it has become known) is not, as some erroneously believe, specific for Rh immunization. This is exemplified by the fact that widespread application of the test resulted in the discovery of at least three further blood group systems, namely, Kell, Duffy, and Kidd. The test is of particular value in that it may detect the presence of antibody not demonstrable by agglutination in either saline or albumin suspensions.

More recently it has been found that exposure of red cells to various enzymes, such as trypsin, may permit their subsequent agglutination by antibodies of the incomplete variety; it may also increase sensitivity with anti-globulin serum. The latter fact permitted recognition of the postulated allelomorphic gene k of the Kell blood group system and it illustrates the anticipation that, as techniques improve and multiply, so we may expect further discoveries in this fascinating field.

IMMUNOLOGICAL ASPECTS

Enough has now been said to substantiate the claim that antibodies, rather than antigens, are the dominating influence upon the blood group scene. There are, it is true, some antibodies which appear to be "non-specific" or unrelated to any blood group system; such pan-agglutinins are concerned particularly in various forms of acquired hæmolytic anæmia, and, in them, questions of thermal amplitude are important. In others, whether or not the antibody exhibits hæmolytic properties may be of considerable practical significance.

Such technical details apart, the clinical importance of any antigen, other than those of the ABO system to which antibodies naturally occur, depends upon the usual immunological considerations. These include the frequency of presentation of the antigen, its dose, its antigenicity and the ability of the recipient to form antibody.

With particular regard to erythroblastosis, other factors can be recognized. The antibody produced by the mother is in response to an antigen which she lacks, which is carried by the child and which is inherited from the father. Should the father be homozygous as regards the blood factor in question, the prognosis as to future pregnancies is quite different from those instances in which the father is heterozygous. In the former case, each child will carry the responsible antigen and thus will be liable to erythroblastosis; in the latter case, each pregnancy stands an equal chance of resulting in a baby which does not inherit the factor and thus is healthy. Furthermore, as immunization depends in part upon the frequency with which an antigen is presented, there is less chance that a heterozygous husband will immunize a susceptible wife or, putting it another way, erythroblastosis is not likely to appear until several or many children have been carried.

It is fortunate that some protection is afforded a fetus should the maternal antibody be of the saline-agglutinating variety, as this seems to have difficulty in transgressing the placental barrier and thus in gaining access to the fetal circulation; it is postulated that the large size of the antibody molecule is responsible for this fact. On the other hand, an "incomplete" antibody, stated to be of smaller molecular size, has no such difficulty. It is common for antibody when first formed to be of the saline-agglutinating type; should a pregnancy be concerned, the child stands an excellent chance of being unaffected. Once "incomplete" antibody appears, erythroblastosis must be anticipated.

It is noteworthy that a similar change may occur in the nature of the natural antibodies anti-A and anti-B, such a change being brought about, for example, by transfusion incompatible as regards the particular factor, incompatible pregnancies or injections of substances (such as T.A.B. vaccines) with blood group factor activity. Such an immune anti-A may be recognized by its hæmolytic properties and may make a group O blood donor "dangerous" or may result in erythroblastosis in the group A child of a group O mother.

Considering the number of blood group systems that are now known, it is easy to understand that a considerable proportion of all marriages involve incompatibility as regards one or more of these factors. One might expect, therefore, that erythroblastosis would be more commonly encountered than is actually the case. Some blood group factors, however, seem to be but weakly antigenic and some women seem to be able to form antibodies only with great difficulty. The beneficent effect of heterozygosity of the husband has already been mentioned.

It also seems to be the case that immunization to any "minor" blood group factor, even including the important factor D of the Rh complex, is less liable to occur if there is incompatibility involving the ABO system as between the fetus and the mother; this usually concerns a group O mother carrying a group A fetus. The explanation usually offered is that any of the child's group A cells which happen to gain access to the maternal circulation are promptly "neutralized" by the natural anti-A present, before they can exert any antigenic effect by virtue of other blood group factors which they possess and which the mother does not. Of course, ABO incompatibility in pregnancy has, as was mentioned previously, its own hazard in that a group O mother may develop an immune form of anti-A which may result in erythroblastosis in a group A baby; however, the disease in such cases is usually milder in form than when, for example, anti-D of the Rh system, the most common villain, is involved.

It is now well known that some of the most tragic cases of erythroblastosis follow sensitization of the mother by previous transfusion of Rh incompatible blood. This may also apply to antigens of the Rh system other than D, and also to other blood group systems such as Kell. Dissemination of knowledge concerning Rh incompatibility has now caused it to be routine that blood transfusion be preceded by determination of the Rh type of the patient and of the blood donor; we may thus anticipate that trouble on this account will be of diminishing importance. However, technical methods are not entirely fool-proof and blood grouping must sometimes be carried out by relatively inexperienced personnel. Furthermore, there is a sub-type of D known as D^u which may permit a donor erroneously to be classified as Rh negative when actually capable of sensitizing an Rh negative patient. And, of course, as natural antibodies against all these factors other than the ABO system hardly ever occur, incompatibility will not be evident in the direct cross-match at the initial transfusion nor will there be any overt reaction.

Of increasing significance is the fact that the greater number of transfusions which are being given involve more and more opportunities for sensitization to one or other of the less well-known blood group factors. It is well to bear this in mind when considering transfusion for a girl or a woman who may still bear children. It is also obvious that blood from the husband should never, except as a last desperate resort, be used to transfuse a wife; similarly, repeated use of the same donor for the same patient is to be avoided.

While it is thought likely that the picture will change in the future, an idea may be given of the frequency with which the various blood group factors are at present involved in the production of erythroblastosis. The Rh factor D remains by far the most important (over 95% of all clinical cases). Not uncommonly we find antibodies to other components of the Rh system, either in association with anti-D or acting alone; these are anti-c, anti-C, anti-C^w, and anti-E. Cases involving an immune form of anti-A developed by a group O mother are probably more common than is generally appreciated, but severely affected infants seem to be the exception and most cases of this nature are diagnosed on laboratory evidence. Occasionally anti-K is responsible, rarely anti-k, anti-S or anti-s. Cases involving anti-M are extremely rare. Instances have been reported in which the Duffy and the Kidd systems were implicated but, as some other antibody was also present in each case, the significance of these discoveries is not clear. The systems P, Lutheran and Lewis appear to be innocent.

Consideration of the foregoing facts makes it obvious that realism is called for in blood transfusion. The majority, probably about two-thirds, of all adult patients transfused receive but a single unit of blood. Such a unit contains only about 400 ml. of blood, the rest of the volume being anticoagulant. A moment's thought will enable one clearly to see that only a negligible rise in hæmoglobin level and in red cell count can be anticipated from the introduction of this quantity of blood into a circulating volume of some five litres. Blood transfusion is rarely, if ever, indicated in patients suffering from anæmias, such as Addisonian pernicious anæmia or iron-deficiency anæmia, where a specific and effective therapeutic agent is available; indeed, owing to the risk of upsetting the precarious balance of the circulatory dynamics that exists in severe anæmia, transfusion is contraindicated unless there is no alternative.

If it is not anæmia that is being treated but some form of shock due to diminution of the circulating blood volume, a clinical effect almost equally good (and without the risks) can be achieved by the use of substances such as plasma, human albumin, dextran or polyvinylpyrrolidone (P.V.P.); such a statement stands well when the blood or plasma loss is of the order of 500 ml. Should the loss exceed a litre, transfusions of whole blood most definitely are indicated. The guiding principle should be to withhold transfusion until it is clearly essential and then to be liberal in its use.

CASE REPORTS

CASE 1

Mrs. J.C. was investigated in January 1955, when she was 32 years of age. She had had a 2-months' miscarriage in 1951, when she received a single transfusion. She had a further early miscarriage in 1952. Later the same year she was delivered at term of a baby which developed jaundice and anæmia. In 1953 there was a third early miscarriage. In 1954 she gave birth at term to a stillborn and jaundiced baby which had been alive the previous day.

The patient, her husband and their living child were all of group O. The red cells of the husband were, however, strongly agglutinated by serum from his wife, as also were the cells from any blood donors who possessed the antigen c of the Rh complex. Both the husband

and the wife were "Rh positive", but the former had the antigens D, E and c, lacking C, and the latter had C and D, lacking E and c. The genotype of the husband was therefore most probably cDE/cDE (R_2R_2) or, much less likely, cDE/cde (R_2r); in either case, homozygous for the antigen c. His wife, on the other hand, was almost certainly CDe/CDe (R_1R_1).

COMMENT

As an antigen the factor c does not appear to be very potent, and yet the third pregnancy of this patient resulted in an erythroblastotic child despite the fact that the two earlier pregnancies had each ended in miscarriage in the first trimester. It is thus reasonable to conclude that the transfusion which had been given in 1951 must have been incompatible as regards the factor c, and that this must take a major share of the blame for the subsequent appearance of antibody.

As the husband is homozygous for the factor c, any future child of the union is liable to erythroblastosis. Despite the fact that no gynæcological abnormality could be found to account for the miscarriages, the history does not suggest that blood group incompatibility could play any part in interrupting the pregnancies.

CASE 2

The patient, Mrs. M.K., came under observation in October 1954, because of a transfusion reaction. She was 28 years old. Her first pregnancy was in 1946 when she gave birth at term to a healthy child; after delivery she was given a transfusion of blood. Her second, third and fourth children were carried and born without particular incident in 1948, 1949 and 1952 respectively.

In 1954 she had a pregnancy which was carried to term and which resulted in the birth of a healthy baby whose red cells were negative to the Coombs test. She had had anæmia during the pregnancy and it failed to respond satisfactorily to iron medications. While there was no particular blood loss during delivery, the hæmoglobin level post-partum was only 48% and transfusion was therefore prescribed.

The patient was found to be group O, Rh positive, and a bottle of blood of the same group and type, alleged to be compatible in saline and in albumin, was administered. There was a reaction, probably hæmolytic in nature; fortunately, no renal impairment ensued. On rechecking the cross-match by the indirect Coombs technique, incompatibility was apparent.

Further study of the antibody involved showed that it had the specificity anti-E and, through the co-operation of the patient, a complete survey of the family was undertaken. The husband and all the children proved to be group O. The husband had the genotype cDE/cde (R_2r) and the wife CDe/CDe (R_1R_1). Their children, in order of seniority, were CDe/cDE (R_1R_2), CDe/cDE, CDe/cde (R_1r), CDe/cDE and CDe/cDE. Thus in four of the five pregnancies was there opportunity for the mother to become sensitized to the factor E; whether or not the transfusion in 1946 played any part remains conjectural, but about 35% of random Rh positive blood donors possess the antigen E.

COMMENT

In the immediate post-transfusion period the antibody was difficult to detect, but it subsequently increased in strength, a common phenomenon following incompatible transfusion. It was active in saline and this may explain why the baby was healthy and why the Coombs test performed on its red cells was negative.

In considering the prognosis for future pregnancies, the husband is heterozygous for the factor E and thus there is an equal chance for each child to be E-negative. If E-positive, will the antibody change to the more dangerous "incomplete" form? That is unanswerable. Certain it is that this patient must have donor blood proven not to contain the antigen E should she ever require transfusion in the future.

CASE 3

Mrs. A.T. was 40 years of age when she gave birth to a baby obviously affected by erythroblastosis in January 1955. It is noteworthy that repeated testing with well-controlled Coombs sera failed to give a positive result with the baby's red cells and yet the diagnosis of erythroblastosis was unavoidable.

The patient had had five previous children, none of whom showed jaundice or anæmia at birth, and there had been no stillbirths. The patient had never been transfused.

The wife was group A and Rh positive, probably cDE/cde (R_2r). The baby was group A, Rh positive, probably CDe/cDE (R_1R_2). The husband was group O, Rh positive, probably CDe/CDe (R_1R_1). As the red cells of the husband were negative when tested with anti-c, he was definitely homozygous as regards the antigen C.

Serum from the mother caused strong agglutination of the baby's cells, thus confirming the presence of an antibody despite the negative Coombs test. Further testing of this antibody showed it to be active in saline and in albumin, and to have the specificity anti-C, a finding which fitted well with the presumed genotypes. The mother lacked the antigen C and had become immunized by this antigen, carried, as it must have been, by each successive child—the husband being homozygous for this factor.

COMMENT

This appears to be a straightforward case of multiple pregnancies resulting in the immunization of a wife by a factor she lacked and for which her husband was homozygous.

SUMMARY

The present position of our knowledge as regards immunization by the various blood group factors is briefly reviewed with particular reference to antigens other than those of the ABO system and the factor D of the Rh complex.

It is pointed out that the indiscriminate use of blood transfusion will make it increasingly likely that we shall encounter hæmolytic reactions and cases of erythroblastosis involving one or more of the less well-known blood group factors.

Emphasis is laid upon the fact that transfusion of a single unit of blood to an adult patient, although commonly practised, can scarcely be expected materially to improve his or her condition.

A plea is entered for particular discretion in the transfusion of girls or of women still capable of bearing children.

The author wishes to acknowledge helpful criticisms by Drs. G. W. Miller, B. P. L. Moore, R. L. Denton, P. G. Weil and D. S. Kahn.

As this review is intended for the clinician and not for the specialist in the blood group field, references to the literature have deliberately been omitted. However, the reader who is interested may find further information and a complete bibliography in the following books:

REFERENCES

1. RACE, R. R. AND SANGER, R.: Blood groups in man, 2nd ed., Blackwell Scientific Publications, Oxford, England, 1954.
2. MOLLISON, P. L.: Blood transfusion in clinical medicine, 1st ed., Blackwell Scientific Publications, Oxford, England, 1951.
3. MOLLISON, P. L., MOURANT, A. E. AND RACE, R. R.: The Rh blood groups and their clinical effects, M.R.C. Memorandum No. 27, H.M. Stationery Office, London, 1952.

DISEASES OF THE MEIBOMIAN GLANDS*

C. D. BAIRD, M.D., C.M., *Chatham, Ont.*

THE MEIBOMIAN GLANDS are long, modified sebaceous glands which are remarkable in that they are not connected with hairs. It has been suggested that they represent a row of lashes which have disappeared in man, but may reappear in the condition of distichiasis in which the Meibomian glands themselves are said to be absent.

They are developed only slightly in other animals. In the camel, they appear to be absent. They are replaced by the sebaceous glands in the huge caruncle of the animal, which fills the whole of the inner canthus. In birds, only traces are found and they have the appearance of sebaceous glands of the skin, with the hairs of which they are still often found associated.

The Meibomian glands are embedded in the dense connective tissue of the tarsus. These are elongated acinous glands which, lying parallel to each other, traverse the tarsus from its attached border to its free border. They are longest in the middle of the tarsus, where the latter attains its greatest height, and grow progressively shorter towards the edge of the tarsus. In their essential character the Meibomian glands are nothing but large sebaceous glands. Like the latter, they secrete sebum, which lubricates the edges of the lids. By this, the overflow of tears, over the free border of the lids, is hindered; the closure of the palpebral fissure is rendered watertight; and, lastly, the skin of the border of the lid is protected from maceration by the tears.

Undoubtedly, the most common disease of the Meibomian gland encountered in the office of the ophthalmologist is the chalazion. While this condition responds relatively well to surgery, its cause and prevention remain a mystery. The pathogenesis of this disease is still obscure, and its pathology must first be understood in order to appreciate the theories that have been advanced.

A chalazion encloses mucous, soft granulation tissue containing many round cells and a great number of giant cells, which have an epitheloid character and contain numerous nuclei. One also finds dilation of the preserved glandular alveoli, calcified masses of secretion, remains of dead epithelium and infiltration of the surrounding connective tissue of the tarsus. This condition

*Presented at the Conjoint Annual Meeting of the C.M.A., B.M.A. and O.M.A., Toronto, June 1955.

is one of chronic folliculitis with development of a granulation tissue containing giant cells.

Virchow thought a chalazion to be a granulation tumour, while Haab de Wecker and others believed it to be a retention cyst of the Meibomian glands. The great number of giant cells led Baumgarten and Tongl to believe that it was a tuberculous granulation tissue. However, it has been proved by many inoculation experiments that chalazia do not contain tubercle bacilli, and I do not believe that they are in any way connected with tuberculosis. It can happen only in rare cases that tubercle bacilli may be carried metastatically into the connective tissue of the tarsus and excite a formation of granulation tissue in the gland.

During experiments concerning endogenous tuberculosis of the eye, Stock produced chalazion-like nodes in the upper lid. Other microorganisms have been mistaken for agents of chalazion. Deyl believed he had discovered the agent in the xerosis bacilli, but this was an error.

The agent of chalazion is still unknown, though the tendency of the disease to recur indicates an infectious etiology.

A chalazion may appear after blepharitis or local tarsal infection, but more usually its onset is slow and gradual without apparent cause. Over the little hard tumour the skin is at first freely movable and normal, but as growth continues it may become stretched and vivid. Underneath, the conjunctiva is velvet-like, red and swollen, but as the tarsus becomes thickened by pressure, a bluish-grey spot may be seen on the conjunctiva when the lid is everted. The tumour may remain dormant indefinitely. In some early cases, it may be absorbed and disappear. Occasionally, secondary infection and suppuration occur, exceptionally ossification. However, in most cases it increases in size and becomes soft in consistency until it eventually bursts on the conjunctival surface. Then, after the central softened portion has escaped as a viscid gelatinous mass, fleshy granulations form fungoid excrescences, which may remain protruding from the conjunctiva for some considerable time; it usually requires many months for the tumour to disappear completely. Alternatively and more rarely, it may perforate the tarsus in front, in which case the granulation tissue grows into the subcutaneous tissue above the lid border, forming a soft, flat tumour which may remain unchanged for months (chalazion externa). The skin, discoloured to a reddish hue, becomes adherent to it and may break down so that a sinus is formed. Again a chalazion may develop in the duct of the tarsal gland, in which case it projects like a nipple from the ciliary border, being flattened on its posterior side by the pressure of the globe (marginal chalazion).

In cases where multiple chalazia appear, the entire tarsus may be affected and two or more tumours may become confluent so that the whole lid forms nodular projections and is thickened to such an extent that eversion is difficult; the skin remains free although it may be discoloured, but the tarsal conjunctiva is coarse and velvety, uneven and nodular, and the clinical picture may suggest a tarsitis or a neoplasm (giant chalazion).

Symptoms are few; indeed the patient may be ignorant of its presence until it has reached considerable size. The usual complaint is cosmetic, but some heaviness and discomfort may be present; occasionally there may be inflammatory concomitants but these are usually insignificant; if, however, fungoid excrescences have developed on the conjunctival surface the discomfort may be considerable. It is interesting to note that the presence of a chalazion may alter the refraction and cause some astigmatism, which occasionally may be considerable but disappears on removal of the tumour.

The diagnosis of chalazion is usually easy. The more widespread types may simulate a tarsitis, and occasionally the question of a neoplasm (adenoma, carcinoma and very occasionally sarcoma) may arise. In the latter case, suspicions are usually aroused when the tumour is cut into or by its recurrence. In such cases the diagnosis is made by histological examination. A chalazion which persistently recurs after adequate surgical treatment should always be subjected to this examination with the view to eliminating malignancy.

If the chalazion becomes sufficiently large to annoy the patient or interfere with the function of the lid, or if granulation tissue proliferates from a ruptured chalazion, surgical treatment is indicated.

Acute Suppurative Meibomianitis or Hordeolum Internum is much rarer than hordeolum externum and forms a complete contrast to the chronic granulating inflammation found in chalazion. In this condition, a hard node may also be felt in the tarsus, but it is very painful and the

symptoms of inflammation are tempestuous. The inflammatory swelling involves the skin of the lid as well as the conjunctiva. The preauricular gland is enlarged and tender. The suppuration is generally caused by the entrance of virulent staphylococci into the Meibomian glands through their efferent ducts. The course of the disease is, on the whole, the same as that of hordeolum externum; but, as the Meibomian glands are larger than those of Zeis, and are enveloped in the firm connective tissue of the tarsus, the inflammatory symptoms are more violent, and it takes a longer time for the pus to be expelled. Upon eversion of the lid, the pus in the affected glands appears as a yellowish spot, shining through the conjunctiva. Ultimately, it breaks through the conjunctiva or is discharged through the orifice of the gland. Perforation through the skin occurs only as an exception, in contradistinction to hordeolum externum, in which it is the rule.

If the duct is still patent, treatment consists of the application of hot compresses, administration of sulfonamides or antibiotic ointments, and gentle attempts to express infected matter from the involved gland. If, after a week or two, the inflammation and abscess do not seem to be subsiding, it may be necessary to make a small incision through the conjunctiva and tarsus directly over the involved gland. The incision is made perpendicular to the lid margin, beginning just behind the margin itself. After the pus has been evacuated, the inflammatory symptoms rapidly abate. Sometimes a granulation forms in the opening of the abscess cavity, and very malignant cases may result in an extensive necrosis of the tarsal connective tissue.

Chronic Suppurative Meibomianitis is not common. Where infectious symptoms supervene on a seborrhœic condition, a chronic meibomianitis may become purulent, in which case frank pus can be massaged from the glands; here the infection is generally staphyloccocal. It may quiet down occasionally for months, usually causing a velvety papillary hypertrophy in the adjacent tarsal conjunctiva. More rarely still, a chronic suppurative condition may be associated with infection by a fungus, such as a streptothrix. In these cases, the tarsus becomes thickened, the ducts of the tarsal glands dilate, and from their openings a sero-purulent fluid containing granules can be expressed; or a chalazion-like tumour may develop, discharging pus through fistulæ into the conjunctival sac.

Seborrhœic Meibomianitis (Chronic Meibomianitis).—Seborrhœic meibomianitis is a chronic infection, wherein a true inflammatory process is superimposed upon a simple seborrhœa of Meibomian glands. The clinical picture was recognized by the early clinicians and corresponds with the ophthalmia tarsi of Mackenzie (1840) and the puriform palpebral flux of Scarpa (1847). Elschnig was one of the first to call attention to this condition. Gifford has emphasized its importance as the etiological factor in many cases of chronic conjunctivitis and chalazia. Filatow has shown that it may be responsible for certain forms of keratitis, especially after trachoma. He thinks it likely that broken-down products of the fatty secretion are responsible for the corneal and conjunctival irritation, while it seems as probable that the growth of bacteria in these glands and resulting bacterial products are, at least, equally irritating. In the secretion, no significant micro-organismal infection has been found. The tendency may be associated with the seborrhœic state, sharing in its general etiology, in which case it is usually obvious at puberty and sometimes at the climacteric. It may be an isolated and local seborrhœa found particularly in persons of middle or advanced age; in the latter case, the phenomenon may be one of atonic passive retention rather than hypersecretion.

The condition is evidenced chiefly by the thickening and reddening of the lids especially near the free border and the deposition along the lid margins of white, frothy Meibomian secretion which tends to collect at the canthi, particularly in the morning ("sleep"). Pressure on the lids expresses a yellowish material, sometimes clear and oily, but often flocculent and almost purulent. Pain is usually absent or slight. In severe cases the glands become hyperplastic and the tarsal plate is swollen.

In the triad composed of chronic conjunctivitis, chronic blepharitis and meibomianitis, the meibomianitis is too frequently forgotten in the clinical picture and treatment, with unfortunate results, for meibomianitis is the cause of the other two conditions and is responsible for maintaining the vicious circle. Eventually considerable hypertrophy may occur in the tarsus with permanent thickening of the lids, and occasionally of the ducts, which may lead to the development

of chalazia, which may appear in crops over periods of years unless efficient treatment is carried out.

Treatment of the seborrhœa, apart from measures directed against the general constitutional condition, should consist of alkaline lotion (sodium bicarbonate) and frequent expression of the glands by massage; this is done either by pressing the skin surface of both everted lids approximated together with the fingers, or by massaging the conjunctival surface of the lid with a glass rod, milking the tarsal glands against a finger laid on the skin surface. It is astonishing how much secretion of an oily, pus-like nature can be expelled in this way and how much relief its removal brings to the patient. Ointments are contraindicated since the imperviousness dams the secretion back. The massage must be continued for as long as abnormal secretion may be expressed. This treatment is combined with hot compresses. A few cases may resist this treatment and one should then resort to autogenous vaccines or x-ray therapy. The predisposing causes and their treatment are the same as for blepharitis and hordeolum. Systemic administration of sulfonamides or penicillin therapy for a week or two is indicated in most of these cases. In the worst cases, it may be necessary to split the tarsus and scrape the glands. Couzi recommended sealing the orifices of the glands by electrocoagulation.

Retention of this Meibomian secretion may produce a condition of acne of the Meibomian gland or comedo of a gland.

Epithelioma arising from Meibomian Glands.—Since the Meibomian glands are viewed as modified sebaceous glands, tumours arising from them usually represent a type of sebaceous gland epithelioma. The lesion may occur as a localized benign adenomatous growth, but not infrequently it manifests itself as a rapidly growing carcinoma. Because of its inflammatory nature, it may be confused in the beginning with a chalazion or a hordeolum. Some product of the tumour growth seems to lead to inflammation, which may mask the neoplastic nature of the lesion. The primary lesion is actually a chalazion with or without suppuration. Incision and curettage of the chalazion produce the usual friable granulation tissue with or without pus, or liquefied tissue. The area remains somewhat inflamed and does not respond to treatment in the usual manner. At a later date, at the same site a frank epithelioma develops. It is possible that the chronic inflammation occasioned by the chalazion precipitates the epithelioma. I think, therefore, that any chalazion which does not promptly regress should be observed at intervals for evidence of growth.

Knapp mentioned the tendency to confuse a Meibomian gland epithelioma with a chalazion and cites an instance in which the outcome was fatal.

Other, less frequently confusing conditions which must be excluded are tuberculoma, tularæmia, gummata, chronic suppurative meibomianitis, or mycotic infection.

Infarct of Meibomian Gland.—In elderly people, we often see, when everting the lids, small bright yellow spots beneath the conjunctiva. These are the inspissated contents of the Meibomian glands, which accumulate in their excretory ducts (or their acini) and distend them. These infarcts usually do not cause trouble; however, sometimes they are transformed by the deposition of lime salts into hard, stony masses. These bulge the conjunctiva forward and even perforate it with their sharp edges, causing mechanical injury to the eye. In this case they must be removed through an incision in the conjunctiva.

They may be numerous, requiring several sittings before all are removed. As yet we have no method by which their recurrence can be prevented, although massage of the lids may be of some value.

The infarcts of the Meibomian glands should not be confused with the much more frequently occurring concretions that develop within the glands of the conjunctiva. These also appear under the guise of yellow spots, but are more superficial.

ACUTE APPENDICITIS AND BLEEDING OVARIAN FOLLICLE WITH HÆMOPERITONEUM

During 15 years, seven cases of acute appendicitis complicated by hæmoperitoneum due to ruptured Graafian follicle were seen among 800 cases of acute appendicitis in women between 13 and 45 years of age. Pain was the most prominent symptom, mostly in the right lower quadrant, often referred to the shoulder. Ages in the sub-group were between 16 and 32 years.

It was considered that the co-existence of the two lesions was a coincidence. The danger of attributing the symptoms and signs to only the ruptured follicle is emphasized.—J. Robinovitch and P. Robinovitch: *A.M.A. Arch. Surg.*, 71: 178, 1955.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

FAT EMBOLISM: INCIDENCE OF URINARY FAT IN TRAUMA*

K. S. MORTON, M.D., C.M., M.Sc.,
New Westminster, B.C.

BECAUSE BASIC FACTS leading to a fuller understanding of the clinical entity "fat embolism" are strangely lacking, it was thought appropriate to add to the knowledge by determining the incidence of fat in the urine of patients subject to trauma, elective or accidental. In addition, clinical observations have been made in an attempt to correlate these with the laboratory findings. Reference has also been made to the literature in order to emphasize salient points.

METHODS

Patients investigated were those admitted routinely to an orthopædic ward, selection being limited to those whose hospital stay would be at least seven days. Patients admitted for elective bone surgery and emergency treatment of fractures were used.

Each patient was examined daily for seven days after operation or trauma. Blood pressure, temperature, and pulse and respiratory rates were recorded; the chest was examined and skin and conjunctivæ were examined for petechiæ; record was made of sedatives and oily medications used and whether oxygen became necessary as a therapeutic measure; cerebral signs were also noted.

Laboratory examinations were confined to detection of fat in the urine by gross and microscopic examinations and, as well, by the "sizzle test" described by Scuderi.[11] Urine specimens examined were overnight ones collected in clean jars daily for seven days. These were stored in a cool place for 8 to 12 hours and then subjected to the sizzle test and examined microscopically after the method of Scuderi.[11] It was decided that catheter specimens in which tragacanth and glycerin had been used as lubricant were entirely reliable.

OBSERVATIONS

Operative procedures carried out included spine fusions, bone grafts, arthrodeses, osteotomies, excision of bone tumours, open reductions and hip nailings; injuries included all types of fractures and fracture dislocations. A total of 52 cases were examined daily for the required seven days. In none was gross fat recognizable in the urine. Thirty (57.7%) of these 52 had microscopic fat in the urine, and there were 46 positive examinations out of a total of 364 (12.6%). Also, 30 patients (57.7%) had positive sizzle tests, but only 19 of these were the same patients who had positive findings on microscopic examination. These 30 patients totalled 56 positive sizzle tests (15.4%); again these did not correlate well with the microscopical findings.

Petechiæ were recognized in the axillary regions of nine patients; six of these also had microscopically positive urine, and of the remaining three, the petechiæ in two were thought to be the result of walking with crutches.

Signs of cerebral involvement were frequent but were held to be of little value since they ranged from the confusion of obvious head injury or senility to the somnolence of heavy sedation for acute alcoholism.

There was no clear-cut case of clinical fat embolism in this series. There were, however, four patients who may have illustrated such cases in minimal degree. One was a male 30 years of age who had had a bone graft for non-union of a fractured femur. Urine was positive microscopically on two occasions, petechiæ were noted and his behaviour was somewhat irrational for a 48-hour period after operation. A second patient had prominent petechiæ and a positive urine but no chest signs, and cerebral signs were minimal. The remaining two were older males, both showing chest and cerebral signs, petechiæ and positive results of urine fat examinations. These cases would not have been described as possible cases of fat embolism but for this investigation.

Musselman *et al.*,[4, 7] in an analysis of 109 admissions for trauma, found fat in the urine of 54% of these. This figure compares well with the 58% obtained in our series of 52 admissions. It is somewhat lower, however, than the figure of 80% for fractures given by Scriba, as quoted by Dunphy and Ilfeld.[3] In Musselman's control group of 60 uninjured patients, on the other hand, the incidence of fat in the urine was 12%. He found that the incidence of fat in the urine was higher in the more severely injured (55%) and in fractures (60%) than in soft tissue injuries (26%). It is evident, therefore, that trauma in

*From the Department of Orthopædic Surgery, Vancouver General Hospital, Vancouver, B.C.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

some way leads to a significant increase in the excretion of fat in urine.

Musselman[7] discards the sputum test for fat, first described by Warthin[14] in 1913, as being invalid, since 40 of 50 uninjured patients had positive sputum on three of seven days tested. He concluded, as did Nuessle,[8] that fat is a normal constituent of sputum. Sevitt,[12] on the other hand, believes that sputum examination for fat is valid, if the sputum is treated with osmic acid and blocked in paraffin.

One other laboratory test to confirm a diagnosis of fat embolism has been suggested recently by Peltier.[9] This test is a dark-field examination of fluorochrome-stained blood for fat droplets over 12 microns in size. Here, too, 75% of patients after bone operations had embolic fat, while only one of the 78 patients examined might possibly have had clinical fat embolism.

Reports of autopsy findings show this same high incidence of fat emboli. Denman and Gragg,[2] reporting 99 autopsies, found emboli in 9 out of 19 cases of trauma and in 22 out of 80 others; Robb-Smith[10] described fat emboli in 41 of 115 autopsies in cases of trauma; Vance's[13] figures were 102 of 164 cases of trauma and 7 of 82 others; Lehman,[6] in 50 routine autopsies (33 with no trauma) found that 77% had fat emboli.

This brief review of the literature makes it apparent that fat embolism is far more common in the laboratory and the autopsy room than it is on the ward. In 1,000 consecutive battle casualties, Wilson and Salisbury[15] found only eight cases of clinical fat embolism (0.8%). Darrach, in the discussion following a paper by Harris, Perrett and MacLauchlin,[5] noted that in a 10-year period at Presbyterian Hospital in 12,000 fractures, only two cases of fat embolism had been recorded. Musselman,[7] in his series of 57 patients with positive urine fat, stated that the fat embolism gave rise to significant symptoms in only one-third of these and was a major cause of death in only six.

To Whitson,[16] the presence of fat globules at autopsy indicates an anoxæmic death; anoxæmia is the cause and extravascular fat is the result. He suggests that the autopsy findings described in fat embolism are the same as those for shock and that the presence of fat globules at autopsy indicates an anoxæmic death. He concludes that the theory of fat embolism is not convincing and that this diagnosis as a cause of death should be discarded in favour of one of anoxæmia. On the basis of analyses of human cases and injection of fat into rabbits in shock, Armin and Grant[1] conclude that "in injured man—gross pulmonary fat embolism is unlikely to cause obvious symptoms or to be alone or in part responsible for death". Sevitt[12] is in agreement with this opinion, believing that *pulmonary* fat embolism is very common but is (in most cases at least) of no clinical significance. On the other hand, he believes that *systemic* fat embolism and the clinical syndrome of fat embolism, though rare, do occur.

CONCLUSIONS

Evidence has been presented which corroborates Musselman's report that excretion of fat in urine in trauma cases is relatively common. Evidence has also been cited from the literature that embolic fat is common in the blood of trauma patients and that fat emboli are exceedingly common at autopsy, not only in trauma cases but also in deaths from other causes. That the syndrome may well be another manifestation of shock is suggested by the finding of unexplained severe anæmia in many cases (Harris[5]) and by the conclusions of Armin and Grant who successfully treated, by transfusion, rabbits in shock and with injected fat. Indeed, Whitson has stated that anoxæmia of shock is the true cause of death in such cases. Undoubtedly further observations in this direction are necessary.

SUMMARY

1. Fat in the urine is a common finding in patients subjected to trauma, elective or accidental.

2. The frequent finding of fat in the urine discounts the value of this test in confirming a clinical diagnosis of fat embolism in individual cases.

3. Evidence in the literature for a relationship between shock and fat embolism has been cited.

REFERENCES

1. ARMIN, J. AND GRANT, R. T.: *Clin. Sc.*, **10:** 441, 1951.
2. DENMAN, F. R. AND GRAGG, L.: *Arch. Surg.*, **57:** 325, 1948.
3. DUNPHY, J. E. AND ILFELD, F. W.: *Am. J. Surg.*, **77:** 737, 1949.
4. GLAS, W. W., GREKIN, T. D. AND MUSSELMAN, M. M.: *Ibid.*, **85:** 363, 1953.
5. HARRIS, R. I., PERRETT, T. S. AND MACLAUCHLIN, A.: *Ann. Surg.*, **110:** 1095, 1939.
6. LEHMAN, E. P.: *Internat. Surg. Digest*, **7:** 131, 1939.
7. MUSSELMAN, M. M., GLAS, W. W. AND GREKIN, T. D.: *Surgery*, **65:** 551, 1952.
8. NUESSLE, W. F.: *Am. J. Clin. Path.*, **21:** 430, 1951.
9. PELTIER, L. F.: *Surgery*, **36:** 198, 1954.
10. ROBB-SMITH, A. H. T.: *Lancet*, **1:** 135, 1941.
11. SCUDERI, C. S.: *Surg., Gynec. & Obst.*, **72:** 732, 1941.
12. SEVITT, S.: Personal communication, 1955.
13. VANCE, B. M.: *Arch. Surg.*, **23:** 426, 1931.
14. WARTHIN, A. S.: *Internat. Clinics*, **23**, Ser. 4: 171, 1913.
15. WILSON, J. V. AND SALISBURY, C. V.: *Brit. J. Surg.*, **31:** 384, 1944.
16. WHITSON, R. O.: *J. Bone & Joint Surg.*, **33-A:** 447, 1951.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

RAPID DIAGNOSIS OF THE HERPETIC VARIETY OF KAPOSI'S VARICELLIFORM ERUPTION BY TISSUE CULTURE METHODS*

A. J. BEALE, M.D., Dip. Bact. and
H. C. HAIR, M.D., B.Sc.(Med.), F.R.C.P.[C.],
Toronto

IN 1887 KAPOSI described the skin eruption that bears his name, and the following description is taken from the English translation of his textbook:[9] "A very alarming complication of eczema larvale infantum, which has come under my observation in several cases, is an acute outbreak of numerous vesicles, partly scattered, partly arranged in groups. The vesicles are as large as a lentil, filled with clear serum, and the majority are umbilicated. They look like varicella vesicles, but undoubtedly do not belong to this class. The integument which has been attacked in this manner now appears still more swollen, even tense. The little patients have fever (40° C. or more) and are very restless. The vesicles develop very acutely (sometimes overnight), in large numbers, and often continue to appear, in successive crops, for three or four days or even a week. Those which appeared first undergo desiccation, rupture and expose the corium, or they become encrusted and fall off. The largest number of these varicella-like vesicles are found upon the already eczematous skin, but smaller groups appear upon previously intact skin of the neighbourhood, upon the forehead, ears, neck, and even the shoulders and arms."

This eruption is now being increasingly recognized, both in children and adults, as a serious complication of atopic eczema, and the viruses of herpes simplex and vaccinia have been isolated from cases.[16] There may be other causes for the syndrome; for example, one case has been described following an attack of herpes zoster.[10] Now that facilities for the study of viruses are becoming more readily available, the causal agent can usually be promptly identified. When the causal virus is recognized, it is preferable to employ the appropriate specific term, eczema herpeticum or eczema vaccinatum.

*From the Research Institute, the Hospital for Sick Children, Toronto, the Medical Service, Toronto Western Hospital, and the Department of Medicine, University of Toronto.
Aided by a grant to the Research Institute of the Hospital for Sick Children from the Canadian Life Insurance Officers' Association.

The purpose of this paper is to report two cases of eczema herpeticum in which the etiological diagnosis was made within 24 hours of receipt of specimens by the isolation of herpes simplex virus in tissue cultures. The danger of the spread of infection to contacts is emphasized, as the second patient was a nurse in attendance on the first patient.

CASE HISTORIES

CASE 1

The first patient, S.M., aged 20, was admitted to the Toronto Western Hospital on February 14, 1955, for treatment of a generalized atopic eczema which had been resistant to treatment for several months. Three weeks before admission, she had a generalized, somewhat painful lymph node enlargement. On the fourth day after admission (Feb. 18) the patient developed a vesicular lesion on the left side of the upper lip, which in a day or so became vesiculo-pustular and spread to involve the upper cheeks and nose. Culture yielded a heavy growth of *Staphylococcus pyogenes*, sensitive only to erythromycin. These lesions, which were clinically herpetic, remained localized, and the patient's temperature normal, until the ninth day after admission, when the eruption spread very rapidly over the body, being particularly severe on the face, neck, palms, and soles (Fig. 1). On this day (Feb. 23) the temperature rose

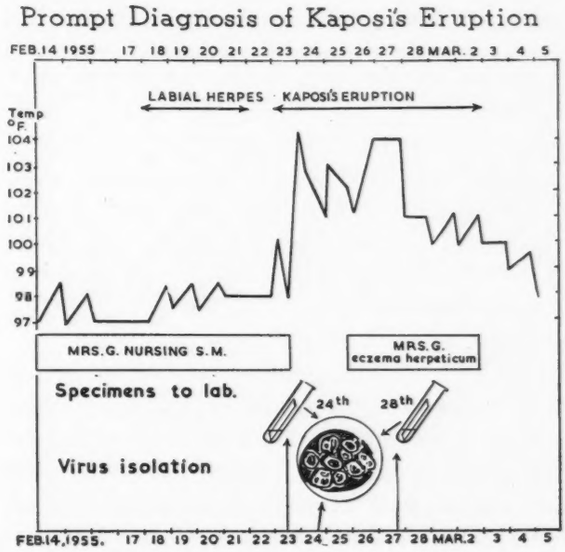


Fig. 1.—Temperature chart of Case 1 (S.M.) illustrating the time relationship of events in the two cases.

to 104° F. (rectal); she became seriously ill, and was very restless with a marked intolerance to pain. She also developed lesions in the mouth; an oliguria, previously of mild degree, became more severe. On general physical examination, only a mild bronchial irritation was found.

Specimens of blood, vesicle fluid and throat washings were taken for virus study. At this time, combined antibiotic therapy with streptomycin and erythromycin was instituted to control secondary infection. She was also given 12.5 c.c. of gamma globulin; this inoculation was followed by a prompt but brief fall in temperature, and improvement in her general condition. During the next five days, the patient was extremely restless and ill, but she developed no other signs of systemic involvement. The skin eruption became more pronounced.

On the morning of March 2, her temperature began to fall and over the next five days returned to normal. At the same time her general condition improved, and her restlessness and intolerance to pain decreased. At the end of 10 days after the onset of the Kaposi eruption, antibiotic therapy was discontinued. At this time, her skin lesions, which had been vesicular and had spread over the entire body, began to recede. During this 10-day period, local therapy consisted of potassium permanganate dressings and antibiotic ointments, which afforded a measure of relief; sedative drugs had little effect in controlling her excitability and restlessness.

By the 21st day, there was no evidence of the eruption apart from a persistent erythema of the affected areas. The atopic dermatitis had completely disappeared and the lymph node enlargement improved. However, one week later, the atopic dermatitis recurred to a severe degree, and further treatment was instituted. The course of the illness was complicated by a phenobarbital eruption and an external otitis.

CASE 2

The second patient, Mrs. G., was the nurse responsible for the care and treatment of the first patient, S.M. Approximately one year previously, she had suffered from a contact eczematous eruption of her hands, caused by soaps and sterilizing solutions. She was able to carry on her work, using protective measures, and the dermatitis only rarely recurred.

Mrs. G. performed the dressings for S.M. from the time of admission to the hospital until Feb. 23, the day when S.M. developed Kaposi's syndrome. Mrs. G.'s hand lesions during this period were healed, and there was no evidence of eczema except for some slight thickening of the skin. On Feb. 26, a vesiculo-pustular lesion developed on the third finger of her left hand. Culture yielded *Staphylococcus pyogenes*. Within three days, a typical herpetic eruption appeared on both hands, and subsided after 10 days. The eczema again broke out but subsided after the patient had had two weeks off duty.

Mrs. G. was treated with potassium permanganate dressings and antibiotic ointments. In addition, at the suggestion of Dr. A. J. Rhodes, ether was employed to combat the herpes virus. Although this appeared to dry up the vesicles, it irritated the hands markedly, and may have been partly responsible for the exacerbation of the contact dermatitis.

VIRUS STUDIES

Methods

TISSUE CULTURES.—Rabbit cornea fragment tissue cultures were prepared by the standard method used in this laboratory.[5] Trypsinized human kidney monolayer cultures were prepared by a modification of the method of Youngner.[23] HeLa cells were maintained and prepared for viral inoculation essentially as described by Syverton *et al.*[20] For detailed microscopic examination, cultures were grown on coverslips, and fixed and stained with hæmatoxylin and eosin as described by Doane *et al.*[5]

Specimens.—Throat washings and swabbings from the skin lesions were placed directly into Medium 199,[13] containing 500 units of penicillin and 250 μg. of streptomycin per ml. This material was inoculated into tissue cultures. Acute and convalescent phase sera were obtained for serological study.

Viruses. For comparative purposes, a stock strain of herpes simplex virus isolated in Toronto (H51) was used in neutralization tests.

Virus titrations

Serial tenfold dilutions of virus were made in Medium 199, and 0.1 ml. amounts of each dilution were inoculated into five cultures. These titrations were performed in either human kidney or HeLa cell cultures; the results were read after one week by the observation of the cytopathogenic effect under the low power of the microscope. The 50% endpoint of infectivity was calculated by the Kärber method, and expressed in terms of the cytopathogenic dose (CPD_{50}).

SERUM NEUTRALIZATION TESTS

One hundred CPD_{50} of virus were added to serial fivefold or tenfold dilutions of serum. The virus and serum mixtures were allowed to stand for one hour at room temperature, and 0.1 ml. amounts were inoculated into five cultures of human kidney or HeLa cells at each dilution. The results were read after one week and the titre of the serum was expressed in terms of the final dilution producing inhibition of cytopathogenic effect in 50% of cultures.

RESULTS

Vesicle fluid, throat washings and blood obtained from S.M. on February 23 were inoculated into coverslip cultures of rabbit cornea the same evening. The next morning, the cultures inoculated with vesicle fluid were fixed and stained. Characteristic nuclear inclusion bodies of herpes simplex were present, thus enabling a provisional diagnosis of eczema herpeticum to be made within 24 hours of receipt of specimen. No virus was isolated from the throat washings or blood, despite several attempts in cultures of rabbit cornea, HeLa cells, and human kidney.

Vesicle fluid obtained from Mrs. G. on February 27 was inoculated into human kidney cultures because cultures of rabbit cornea were not available. Here also a presumptive diagnosis of herpetic infection was made within 24 hours, based on the finding of typical intranuclear inclusion bodies.

Subsequently, the cytopathogenic effect of the viruses isolated from both patients was shown

to be inhibited by an antiserum prepared by inoculation of rabbits with the stock H51 strain of herpes simplex.

Examination of acute and convalescent phase samples of serum from both patients showed a rise in neutralizing antibody to herpes simplex virus during the progress of infection (Table I).

TABLE I.

HERPES VIRUS NEUTRALIZING ANTIBODY LEVELS IN ECZEMA HERPETICUM

Patient	*Onset of Illness*	*Sera collected on*		*50% neutralizing titre**	
		Acute	*Convalescent*	*Acute*	*Convalescent*
S. M.	Feb. 23/55	Feb. 23/55	Mar. 14/55	$10^{-2.1}$	$10^{-3.1}$
Mrs. G.	Feb. 26/55	Feb. 27/55	Mar. 23/55	$10^{-0.6}$	$10^{-1.7}$

*H51 strain of herpes simplex used; similar titres obtained with sera of S.M. tested against homologous (S.M.) strain; titres given are in terms of final dilution of serum.

Since S.M. had a history of recurrent labial herpes, it is not possible to decide whether the initial antibody titre ($10^{-2.1}$) was due to previous infection, or was a response to the current infection. Mrs. G. developed antibodies during the course of the disease, as occurs in primary infections.

Human gamma globulin prepared from pooled adult blood in the Connaught Medical Research Laboratories, University of Toronto, was also examined and, as shown in Table II, it was found to have a high titre of antibodies to the stock herpes strain and to the herpes virus isolated from S.M.

TABLE II.

HERPETIC ANTIBODY CONTENT OF GAMMA GLOBULIN (CONNAUGHT LABORATORIES)

Source of herpes virus used in test	*50% neutralizing titre of gamma globulin**
H51 (stock strain)	$10^{-2.6}$
S.M.	$10^{-2.3}$

*In terms of final dilution of gamma globulin solution (16%).

DISCUSSION

Clinically, S.M. had a typical case of eczema herpeticum and conformed to the classical description of the severe form given by Kaposi.[9] Subsequent authors have referred to enlarged and painful lymph nodes as a prominent feature, but S.M. had such enlargement three weeks before the onset, so that this must have been related to the atopic dermatitis.

Mrs. G. had a localized infection of her hands, which were subject to contact dermatitis. Such milder cases are being increasingly recognized with the spread of virus diagnostic facilities.[8]

An etiological diagnosis can now be made promptly by the virus laboratory in most cases of Kaposi's syndrome. Herpes simplex and vaccinia viruses have been isolated from such cases,[16] and infection with these two viruses can be readily diagnosed by direct microscopical examination of scrapings or by isolation of the virus in tissue cultures. Microscopical examination of stained scrapings from lesions affords the most rapid diagnosis.[2] Giant cells with basophilic or acidophilic nuclear inclusions (Tzanck cells) are seen in scrapings from herpes simplex, but not from vaccinia. Elementary bodies are readily seen in suitable stained preparations from vaccinia, but are rare in herpes simplex.

Isolation of the causal virus is a much more sensitive method of diagnosis, and with the recent advances in the application of tissue cultures for virus study, this is within the scope of smaller laboratories. Rabbit cornea, human kidney, and HeLa cell cultures are all susceptible to herpes simplex and vaccinia. However, the cellular lesions are quite different; herpes simplex produces nuclear inclusions and giant cells, whereas vaccinia produces cytoplasmic inclusions (Guarnieri bodies) and no giant cells. A neutralization test with herpetic or vaccinial antisera serves to confirm the identity of the virus isolated.

The scrapings from lesions of zoster or varicella are identical in appearance to those from herpes simplex.[2] In view of this, and the possibility that the virus of zoster may cause some cases of Kaposi's syndrome,[10] these viruses have to be considered in the differential diagnosis. Neither zoster nor varicella virus will grow in rabbit cornea tissue, and Weller[21] has only recently succeeded in propagating them in cultures of human tissue. Zoster and varicella viruses produce similar focal lesions with giant cells and nuclear inclusion bodies; the viruses are indistinguishable serologically.[22] These viruses differ from others in that cell-free material from infected tissue cultures cannot be used to transmit the infection in series.[21]

Vaccinia cannot be distinguished from variola by the methods so far described. McKenzie,[11] during the 1942 outbreak of smallpox in Glas-

TABLE III.

KAPOSI'S VARICELLIFORM ERUPTION: IDENTIFICATION OF CAUSAL VIRUS

	Smears or scrapings of lesions		*Growth in tissue culture of*			*Other tests*	
Viruses	*Elementary bodies*	*Giant cells*	*Rabbit cornea*	*HeLa cells*	*Human kidney*	*Inoculation of chorioallantoic membrane*	*Serology*
Herpes simplex	Scanty	Numerous with nuclear inclusions	Rapid formation of giant cells with nuclear inclusions	Similar to rabbit cornea, growth less rapid	Similar to rabbit cornea	Small discrete lesions	Neutralized by herpetic antisera
Varicella and zoster	Scanty	Numerous with nuclear inclusions	No growth	No growth	Foci of giant cells with nuclear inclusions. Viruses not transmissible without cells	No growth	Varicella and zoster not distinguishable
Vaccinia	Numerous	Absent	Grows well with cytoplasmic inclusions	Grows well	Grows well	Diffuse hæmorrhagic necrotic lesions	Vaccinia and variola not distinguishable
Variola	Numerous	Absent	Not known	Not known	Not known	Discrete white lesions	Vaccinia and variola not distinguishable

gow, noted 10 cases of Kaposi's eruption representing many times the normal incidence. Crusts from two of the cases gave positive serological results for vaccinia, but in view of the outbreak of smallpox, preventive measures appropriate to the more severe disease had to be taken. The laboratory diagnosis of smallpox and the distinction between variola and vaccinia viruses are discussed by Downie and MacDonald.[7] Vaccinia virus produces diffuse hæmorrhagic necrotic lesions on the chorioallantoic membrane of the developing chick embryo, and grows well on rabbit skin, whereas variola virus produces discrete white lesions on the chorioallantoic membrane, and grows poorly on rabbit skin.

Criteria for distinguishing between these viruses are summarized in Table III. Since the majority of cases are due to vaccinia or herpes simplex, the examination of scrapings and inoculation of one of the three varieties of tissue cultures mentioned will suffice for routine purposes. Tissue cultures of rabbit cornea are at least as sensitive as classical methods of isolating herpes simplex and very much more rapid.[5] This rapidity is particularly valuable in diagnostic work and is well illustrated by our cases. Tissue cultures also facilitate accurate quantitative serological titrations.

Mrs. G. probably experienced a primary infection, since she had a very low level of antibodies in the acute phase serum and a clear-cut rise in titre in the convalescent specimen (Table I). The infection remained localized to the susceptible cells of the skin of her hands which were infected by direct contact with S.M.

The pathogenesis of the infection of S.M. is less obvious. She gave a history of recurrent labial herpes and her most recent attack started five days before the generalized eruption, and must therefore have been the source of the virus. The onset was so abrupt as to suggest blood-borne dissemination of virus (Fig. 1). The failure to isolate virus from the blood may have been due to sampling after the termination of the viræmic phase. Similarly the high and rising antibody titre might be explained as an accelerated secondary type response in a person whose antibody mechanism had been sensitized by previous exposure to the virus. There is good evidence for viræmia in some cases of primary herpes,[8, 15] and circulating antibody appears in the blood about 5-6 days after a primary infection.[18] Some observations by Downie and McCarthy[6] on the pathogenesis of smallpox are relevant in this connection. In smallpox the virus spreads to the skin by the

blood stream, yet in patients who survive, it can rarely be recovered from the blood after the appearance of the rash. Also patients who develop smallpox, despite previous vaccination, produce antibodies very rapidly so that the latter are present three days after the onset in most cases, about two days before their appearance in unvaccinated cases. The appearance of antibody is associated with clinical improvement.

Alternatively, virus may have spread directly over the skin from the labial focus. S.M. was suffering from a very acute weeping eczema treated with moist dressings. The rash was very irritating, and scratching, especially at night, was unavoidable. Conditions were, therefore, ideally suited to the surface spread of infection. The antibody titre during recurrent episodes of herpetic infection does not as a rule alter from the level established after primary infection.[18] Therefore, in view of S.M.'s history of recurrent herpes, the antibody titre of $10^{-2.1}$ observed on February 23 was probably present on February 18 also. The titre is very similar to that observed in Mrs. G. during convalescence and falls within the range found by Scott *et al.*[18] It is reasonable to suppose that this antibody might not protect skin cells against direct infection, but it should preclude dissemination of virus by the blood stream. The presence of antibody certainly offers a reasonable explanation for the failure to isolate virus from the blood. The tenfold rise in antibody titre observed in convalescence was presumably due to the widespread infection and massive absorption of virus antigen.

Most cases of eczema herpeticum give a history of recent exposure to herpetic infection.[1] They either infect themselves like S.M. or are exposed to a source of infection like Mrs. G. Several epidemics in skin wards have been described.[4, 12] While the majority of cases occur as a complication of atopic eczema, any area of damaged skin is susceptible to infection.[1, 19] Cases of atopic eczema should therefore be protected from all sources of infection.

Several cases of recurrent eczema herpeticum have been reported.[3, 17, 19] It is not clear whether these recurrences are due to reinfection of the cells of the skin from an isolated focus of latent infection or to a recrudescence of a widespread latent infection. The case described by Boake *et al.*[3] had several recurrences in an area of skin subject to atopic dermatitis. Mild stimuli such as a fever provoked only labial herpes, but increasingly severe stimuli led to the involvement of more skin areas, which suggests that more widely seeded, latent virus was activated by the severe provoking stimuli. Patients with eczema herpeticum shed large amounts of virus into their environment and should be nursed in separate cubicles with full barrier precautions. Secondary bacterial infection, usually with *Staphylococcus pyogenes*, is almost invariable, and formerly added greatly to the severity of the cases. Such bacterial infection should be treated with the appropriate antibiotic, or combination of antibiotics, based upon sensitivity tests with the organism isolated from the patient.

Ether is known to destroy the virus *in vitro* and might be expected to control the surface spread. It appeared to exert a beneficial effect on the herpetic infection, but may have been responsible for the aggravation of the eczema, when given to Mrs. G. Subsequently, one of us (H.C.H.) has used ether for the local treatment of several herpetic eruptions with encouraging results.

Gamma globulin has a high titre of herpes simplex neutralizing antibodies (Table II). In view of the possibility of viræmia[8, 15] it is indicated in the treatment of severe primary infections. It cannot be expected to influence favourably a case like S.M., where circulating antibody is already present. Treatment with cortisone is contraindicated, because it has been shown to aggravate experimental herpetic keratitis in the rabbit.[14]

SUMMARY

1. Two cases of eczema herpeticum are reported.

2. Herpes simplex virus was isolated by tissue culture methods from both cases within 24 hours of receipt of specimens.

3. A rise in titre of antibodies to herpes simplex was demonstrated.

4. The diagnosis, pathogenesis and treatment of the condition are discussed.

Our thanks are due to Dr. A. J. Rhodes and Miss Frances Doane, B.Sc., for their help and advice.

REFERENCES

1. BARTON, R. L. AND BRUNSTING, L. A.: *Arch. Dermat. & Syph.*, **50**: 99, 1944.
2. BLANK, H. *et al.*: *J. A. M. A.*, **146**: 1410, 1951.
3. BOAKE, W. C., DUDGEON, J. A. AND BURNET, F. M.: *Lancet*, **1**: 383, 1951.
4. BRAIN, R. T.: *Australian J. Dermat.*, **2**: 109, 1954.
5. DOANE, F., RHODES, A. J. AND ORMSBY, H. L.: *Canad. M. A. J.*, **73**: 260, 1955.

6. DOWNIE, A. W. AND MCCARTHY, K.: *In* The dynamics of virus and rickettsial infections, ed. F. W. Hartmann *et al.*, Blakiston Company, New York, 1954, p. 194.
7. DOWNIE, A. W. AND MACDONALD, A.: *Brit. M. Bull.*, **9**: 191, 1953.
8. JACKSON, A. D. M. AND DUDGEON, J. A.: *Great Ormond St. J.*, **1**: 125, 1951.
9. KAPOSI, M.: Pathology and treatment of diseases of the skin, William Wood & Company, New York, 1895, p. 346.
10. KING, A. D.: *Arch. Dermat. & Syph.*, **39**: 1035, 1939.
11. MCKENZIE, P.: *Proc. Roy. Soc. Med.*, **36**: 235, 1943.
12. MCLACHLAN, A. D. AND GILLESPIE, M.: *Brit. J. Dermat.*, **48**: 337, 1936.
13. MORGAN, J. F., MORTON, H. J. AND PARKER, R. C.: *Proc. Soc. Exper. Biol. & Med.*, **73**: 1, 1950.
14. ORMSBY, H. L., DEMPSTER, G. AND VAN ROOYEN, C. E.: *Am. J. Ophth.*, **43**: 1687, 1951.
15. PUGH, R. C. B., NEWNS, G. H. AND DUDGEON, J. A.: *Arch. Dis. Childhood*, **29**: 60, 1954.
16. VAN ROOYEN, C. E. AND RHODES, A. J.: Virus diseases of man, 2nd ed., Thos. Nelson & Sons, New York, 1948, pp. 172 and 299.
17. RUCHMAN, I., WELSH, A. L. AND DODD, K.: *Arch. Dermat. & Syph.*, **56**: 846, 1947.
18. SCOTT, T. F. M. *et al.*: *J. Pediat.*, **41**: 835, 1952.
19. SIMPSON, J. R.: *Brit. J. Dermat.*, **65**: 139, 1953.
20. SYVERTON, J. T., SCHERER, W. F. AND ELWOOD, P. M.: *J. Lab. & Clin. Med.*, **43**: 286, 1954.
21. WELLER, T. H.: *Proc. Soc. Exper. Biol. & Med.*, **83**: 340, 1953.
22. WELLER, T. H. AND COONS, A. H.: *Ibid.*, **86**: 789, 1954.
23. YOUNGNER, J. S.: *Ibid.*, **85**: 202, 1954.

EFFECT OF NIACIN AND NICOTINAMIDE ON LEUKOCYTES AND SOME URINARY CONSTITUENTS*

A. HOFFER, Ph.D., M.D.,† *Regina, Sask.*

NICOTINIC ACID and its amide have been used for the treatment of many mental disorders uncomplicated by pellagra or even mild subclinical deficiencies.[1-8] For the past three years we have used this vitamin in large dosages (3-10 g. per day orally) for the treatment of acute schizophrenia to bring about remission and to prevent relapse[9] and as an adjunct to anticonvulsant therapy for epilepsy.[10] Three grams per day has been given for up to three years with no toxic effects. It is therefore of great interest to determine the action of these large quantities on body physiology.

Recently nicotinic acid has been found to counteract many of the psychological and physiological reactions of lysergic acid diethylamide,[11] to lower blood cholesterol,[12] to counteract the action of adrenochrome on the electroencephalogram of epileptics, and to have anticonvulsant properties.[13]

The changes in blood leukocytes and in some urine constituents are reported here.

METHOD

Nicotinic acid or its amide was administered orally to two groups of healthy volunteers: (1) a group of 31 subjects ranging in age from 18 to 27 (mean 21.8) including three women, and (2) a group of 11 subjects ranging in age from 21 to 41 (mean 30) including seven women. The latter group comprised the two-gram nicotinic acid group. Samples of blood (intravenous) and urine were taken just before the administration of the vitamin (9.30 a.m.) and two, four and 24 hours after the first dose. The two- and four-hour values were all determined after the initial dose (1 or 2 g. as indicated), but the 24-hour value was determined after four doses, i.e. the second dose after the four-hour sample, the third dose at bedtime and the fourth dose the next morning, two hours before the final sampling.

The blood was examined for leukocytes, and eosinophils were counted. The urine was examined for sodium and potassium (flame photometer), for pH (using pH electrometer), for uric acid and creatinine and for glycine by quantitative paper chromatography.[14]

RESULTS

The changes induced in leukocytes by the acid and amide are shown in Table I.

TABLE I.

THE EFFECT OF NICOTINIC ACID AND NICOTINAMIDE UPON LEUKOCYTES IN BLOOD

Treatment		*No.*	*Initial counts*	*Percentage change produced at 2 hours*	*4 hours*	*24 hours*
			Eosinophils			
Acid	2 g.	11	217	−57	not done	not done
	1 g.	11	88	−30	−35	20
Amide	2 g.	10	88	0	−40	15
	1 g.	10	121	8	−20	8
			Neutrophils			
Acid	2 g.	11	4,155	115	not done	not done
	1 g.	11	4,125	60	162	15
Amide	2 g.	10	4,195	0	44	0
	1 g.	10	3,934	29	28	10
			Lymphocytes			
Acid	2 g.	11	2,486	−20	not done	not done
	1 g.	11	2,461	−5	15	2
Amide	2 g.	10	2,185	18	25	33
	1 g.	10	2,149	43	20	46

*With the co-operation of the Saskatchewan Committee on Schizophrenia Research. The study was supported by the Department of National Health and Welfare, Canada, and by the Rockefeller Foundation, New York.

†Director of Psychiatric Research, Psychiatric Services Branch, Department of Public Health, University Hospital, Saskatoon, Sask.

TABLE II.

EFFECT OF NICOTINIC ACID AND NICOTINAMIDE UPON URIC ACID/CREATININE RATIOS

		Ratio Uric Acid/Creatinine		
		Initial	*Percentage change at*	
Treatment	*Number*	*value*	*2 hours*	*4 hours*
Acid 2 g.	11	0.52	−40.0	−76.0
1 g.	11	0.61	−16.4	−49.2
Amide 2 g.	10	0.58	20.7	13.8
Amide 1 g.	10	0.47	46.8	38.3

Nicotinic acid produced a marked decrease in eosinophils after two hours. The amide produced no change after two hours but a marked change after four hours. At 24 hours all values were elevated over the initial values.

Nicotinic acid produced an intense neutrophilia in all subjects after two and four hours only; the amide produced a mild neutrophilia. Nicotinic acid caused a mild lymphopenia at two hours, whereas the amide led to an increase in lymphocytes two, four and 24 hours after the initial dosage.

The effect of these two compounds on uric acid levels in urine is shown in Table II.

Nicotinic acid lowers the ratio of uric acid to creatinine in the urine, more after four than after two hours. In contrast, the amide causes an increase in the ratio which is more marked at two hours.

The effect of these vitamins upon sodium, potassium and pH values of urine is shown in Table III.

Nicotinic acid increases the acidity of the urine, causes potassium retention with one gram and little change with two-gram dosage, and increases excretion of sodium at two-gram dosage. Nicotinamide lowers acidity of the urine, and enhances potassium and sodium excretion in urine, more markedly at the one-gram dosage. One gram of nicotinic acid causes marked retention of potassium whereas one gram of the amide causes marked excretion of potassium.

The effect of nicotinic acid and nicotinamide on urinary glycine is shown in Table IV.

Two grams of niacin produced a 30% decrease in urinary glycine at two hours, and the decrease was sustained to four hours. With one gram of niacin there was a mild decrease at two hours but an increase at four hours. The amide increased urinary glycine. This increase was more marked with one gram than with two grams.

TABLE III.

CHANGES IN URINARY SODIUM, POTASSIUM, AND pH INDUCED BY NICOTINIC ACID AND NICOTINAMIDE

		pH			*Potassium/creatinine*			*Sodium/creatinine*			*Sodium/potassium*		
					Initial	*Percentage change*		*Initial*	*Percentage change*		*Initial*	*Percentage change*	
Treatment	*Number*	*0*	*2 hr.*	*4 hr.*	*ratio*	*2 hr.*	*4 hr.*	*ratio*	*2 hr.*	*4 hr.*	*ratio*	*2 hr.*	*4 hr.*
Acid 1 g.	11	6.14	5.98	5.79	2.35	−2	−35	2.33	−3	4	0.94	12	70
2 g.	11	5.41	5.49	5.21	1.99	15	2	2.69	10	21	1.36	12	21
Amide 1 g.	10	5.91	6.56	6.22	1.78	36	14	2.05	38	44	1.28	6	16
Amide 2 g.	10	6.00	6.12	6.13	1.66	21	4	2.08	19	8	1.27	−6	7

TABLE IV.

EFFECT OF NICOTINIC ACID AND NICOTINAMIDE ON URINARY GLYCINE VALUES (EXPRESSED AS GLYCINE/CREATININE RATIOS)

			Percentage change in ratio	
Medication	*Number*	*Initial value*	*2 hours*	*4 hours*
		mg. glycine		
Acid 2 g.	7	0.069	−32	−27
1 g.	11	0.048	−14	+29
Amide 2 g.	10	0.042	+ 5	+31
1 g.	10	0.038	+45	+79

DISCUSSION

Nicotinic acid in the dosages used here produces a marked flushing and itching reaction which can be quite unpleasant and may even be said to be stressful. The changes induced in the leukocytes by the acid are similar to those produced by agents such as ACTH, cortisone, adrenaline and other compounds. Because the flush is the most apparent subjective reaction of the acid, it is tempting to ascribe these leukocyte changes to the psychological stress. This may account for some of the change. However, the amide, which does not cause any subjective change at these dosages, also produces similar

Canad. M. A. J.
Mar. 15, 1956, vol. 74

changes in leukocytes, although not of the same intensity. It thus appears that these changes may in part be due to some physiological activity of the vitamin unrelated to vasodilatation but markedly increased by the vasodilatation.

The contrast between the acid and amide is quite striking as regards effect on urinary uric acid. The amide significantly increases the ratio of uric acid to creatinine, whereas the acid significantly decreases it. Thus, if an increase in the ratio is accepted as an indication of stress, the amide induces more stress than the acid. This, however, is a biochemical fallacy caused by the different mode of excretion of the acid and amide. Glycine is a precursor of uric acid.[15] Nicotinic acid, when administered in large doses, is excreted as nicotinuric acid (a combination of nicotinic acid and glycine), and thus by depleting the glycine pool decreases the production of uric acid.[16] Nicotinamide is excreted chiefly as N-methylnicotinamide and does not deplete the glycine pool.[16] Thus with niacin there is a fall in free urinary glycine whereas with the amide there is a rise. There is no change in the blood uric acid values. This raises an interesting speculative point regarding gout. One of the biochemical manifestations of gout is increased concentration of uric acid and urates in the blood. Current therapy for gout is designed to increase the excretion of uric acid (by decreasing reabsorption in the kidney tubules). Is the apparent overproduction of urate related to an overproduction of glycine? If this is so, nicotinic acid might be useful in the therapy of gout. These experiments provide a hint that this is possible, but one would have to determine the action of niacin on uric acid metabolism over a long period of time.

Nicotinamide lowers the acidity of urine, increases the excretion of sodium and potassium and increases the ratio of urinary uric acid to creatinine. Nicotinic acid raises the acidity of urine and causes retention of potassium, excretion of sodium and a decrease in the ratio of uric acid to creatinine. It is interesting to compare these changes with those induced by ACTH, cortisone and compound F,[17] and adrenaline.[18] The relative changes induced in urinary pH, potassium, sodium and ratio of uric acid to creatinine are shown in Table V.

Nicotinamide resembles ACTH and compounds E and F in its activity but does not resemble adrenaline. This may be due to a

TABLE V.

RELATIVE ACTIVITY OF NICOTINIC ACID, NICOTINAMIDE, ACTH, COMPOUND E, COMPOUND F AND ADRENALINE UPON URINE pH, POTASSIUM, SODIUM AND RATIO OF URIC ACID/CREATININE

Substance	*pH*	*Potassium*	*Sodium*	*Ratio uric acid/ creatinine*
Nicotinamide	increase	excretion	excretion	increase
Nicotinic acid	decrease	retention	excretion	decrease
ACTH, Cpd. E and F	decrease	excretion	excretion	increase
Adrenaline	increase	retention	retention	increase

stimulation of the adrenocortical system or to a decrease in the production of adrenaline. The precursor of adrenaline is noradrenaline which is methylated to form adrenaline. There are only four methyl acceptor systems known in the body. Two of these are noradrenaline and nicotinamide. It is possible that large quantities of nicotinamide compete with noradrenaline for methyl groups and will be excreted as the N-methylnicotinamide. Large quantities of the vitamin should therefore decrease the production of adrenaline. Lee[19] has recently shown that the administration of tyrosine, pyridoxine and nicotinic acid to rats changes the ratio of adrenaline to noradrenaline from 10 to 6 in the adrenal medulla. The rationale for the use of the first two substances is to increase the production of adrenaline.[19] Nicotinic acid would tend to decrease this effect. It is likely that the change in the ratio is due to the nicotinic acid. Again if this is confirmed, nicotinic acid ought to be of some value in the treatment of conditions characterized by an overproduction of adrenaline.

Because of the similarity in activity between the vitamin and compounds E and F, one might assume that nicotinic acid has some cortisone-like activity. They should have other properties in common, but an examination of the literature indicates that they are quite dissimilar in activity. A few of their properties are listed below.

	Cortisone	*Nicotinic acid*
1. EEG changes	increase in abnormality[20]	trend to normality
2. Blood cholesterol	increase[21]	decrease
3. Production of psychoses	yes[22-24]	therapeutic
4. Convulsant	yes[20]	anticonvulsant
5. Growth repair	inhibited[25]	accelerated

It thus appears likely that the effects of nicotinic acid are due to decrease in the production of adrenaline.

SUMMARY

Nicotinic acid in large dosage produces a decrease in eosinophils within two hours, an increase in neutrophils and a slight decrease in lymphocytes. The amide produces eosinopenia at four hours, neutrophilia at four hours and a lymphocytosis at two hours.

Nicotinic acid markedly decreases the ratio of urinary uric acid to creatinine while the amide increases the ratio.

Nicotinic acid acidifies the urine and causes retention of potassium and increased excretion of sodium at four hours. There is a decrease in urinary glycine. The amide lowers urine acidity, increases potassium and sodium excretion and increases the ratio of uric acid to creatinine. There is a marked increase in glycine excretion.

Acknowledgment is most gratefully given to the normal subjects who volunteered for this research, including the first-year class, College of Medicine, University of Saskatchewan, and members of Staff, Munroe Wing, to Dr. Jackson and Dr. R. Altschul and Miss M. J. Callbeck, R.N., for their helpful co-operation.

REFERENCES

1. CLECKLEY, H. M., SYDENSTRICKER, V. P. AND GEESLIN, L. E.: *J. A. M. A.*, **112**: 2107, 1939.
2. JOLIFFE, N. *et al.*: *Ibid.*, **114**: 307, 1940.
3. LEHMANN, H.: *Canad. M. A. J.*, **51**: 558, 1944.
4. *Idem*: The biology of mental health and disease, Milbank Memorial Fund, Paul B. Hoeber Inc., New York, 1952, p. 582.
5. SPIES, T. D., COOPER, C. AND BLANKENHORN, M. A.: *J. A. M. A.*, **110**: 662, 1938.
6. SYDENSTRICKER, V. P.: *Proc. Roy. Soc. Med.*, **36**: 169, 1943.
7. SYDENSTRICKER, V. P. AND CLECKLEY, H. M.: *Am. J. Psychiat.*, **98**: 83, 1941.
8. WASHBURNE, A. C.: *Ann. Int. Med.*, **32**: 261, 1950.
9. HOFFER, A. AND OSMOND, H.: Personal observations, 1954.
10. HOFFER, A.: Personal observations, 1954.
11. AGNEW, N. AND HOFFER, A.: *J. Ment. Sc.*, **101**: 12, 1955.
12. ALTSCHUL, R., HOFFER, A. AND STEPHEN, J. D.: *Arch. Biochem.*, **54**: 558, 1955.
13. SZATMARI, A., HOFFER, A. AND SCHNEIDER, R.: *Am. J. Psychiat.*, **111**: 603, 1955.
14. TREW, A. AND FISCHER, R.: *Lancet* (in press).
15. SHEMIN, D. AND RITTENBERG, D.: *J. Biol. Chem.*, **167**: 875, 1947.
16. JOHNSON, B. C. AND LIN, P.-H.: *J. Am. Chem. Soc.*, **75**: 2971, 2974, 1953.
17. DORFMAN, R. I.: *Recent Progress in Hormone Research*, **8**: 87, 1953.
18. THORN, G. W., JENKINS, D. AND LAIDLAW, J. C.: *Ibid.*, **8**: 171, 1953.
19. LEE, P. V.: *J. Pharmacol. & Exper. Therap.*, **112**: 291, 1954.
20. WAYNE, H. L.: *J. Clin. Endocrinol.*, **14**: 1039, 1954.
21. GORDON, D. *et al.*: *J. Exper. Med.*, **99**: 371, 1954.
22. CLARK, L. D. *et al.*: *New England J. Med.*, **249**: 178, 1953.
23. GLASER, G. H.: *Psychosom. Med.*, **15**: 280, 1953.
24. GOOKLER, P. AND SCHEIN, J.: *Ibid.*, **15**: 589, 1953.
25. TAUBENHAUS, M., TAYLOR, B. AND MORTON, J. V.: *Endocrinology*, **51**: 183, 1952.

Case Reports

LYMPH NODE BIOPSY IN THE DIAGNOSIS OF DISSEMINATED LUPUS ERYTHEMATOSUS*

ANCEL BLAUSTEIN, M.D.,†
C. CHRYSSANTHOU, M.D. and
F. RODRIQUEZ, M.D.,
New York, N.Y., U.S.A.

ENLARGEMENT of the superficial and deep lymph nodes is a prominent finding in the majority of reported cases of disseminated lupus erythematosus. This observation was made in 1872 by Kaposi[1] and in 1899 by Hardaway.[2] Low and Rutherford[3] in 1920 were similarly impressed by lymphadenopathy in their cases.

Clinical suspicion of disseminated lupus erythematosus is most commonly confirmed by finding the lupus erythematosus cell either in the peripheral blood or bone marrow.[4] This case is presented because routine microscopic examination of a lymph node biopsy revealed the histological characteristics which, in the authors' opinion, permitted a diagnosis of lupus erythematosus to be made. A sternal marrow aspiration later revealed lupus erythematosus cells. In view of the fact that, despite clinical suspicion, L.E. cells are not always found, biopsy of lymph nodes may provide positive evidence.

C.R., a Mexican woman aged 31, was admitted to the hospital complaining of joint pains for a period of eight months. In 1946 she had been treated for syphilis with penicillin. There was no further history of past illness. She was never hospitalized except for the birth of two children. Both births were normal full-term deliveries. The family history is negative.

The joint pains that led to her present hospital admission had been migratory in type and had involved all joints at some time. The joint pains had been associated with chills and fever but no sweating. The patient complained of weakness and malaise. There had been no weight loss. For the previous two months she had complained of intermenstrual bleeding. The joint pains had been alleviated by salicylates but never cleared up completely. Other symptoms included myopia, pain in the left ear, tenderness in the epigastrium, and constipation.

*From the Department of Pathology, New York City Hospital, and Department of Hospitals, Welfare Island 17, New York.
†Assistant Professor of Pathology, New York Medical College.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

The patient was poorly nourished but well developed and did not appear to be in acute distress. There was a macular rash on the face, not following any particular pattern. The jugular veins appeared distended. Lymph nodes were palpable in the left supraclavicular region. Breathing was regular; lung expansion equal on both sides. The chest was clear to percussion and auscultation. Examination of the heart revealed a soft systolic murmur in the apex. There was a diastolic murmur in the left third intercostal space. The pulse rate was 98; B.P. 120/70 mm. Hg. The liver was palpably enlarged 4 cm. below the costal margin. The spleen also was palpably enlarged 6 cm. below the costal margin.

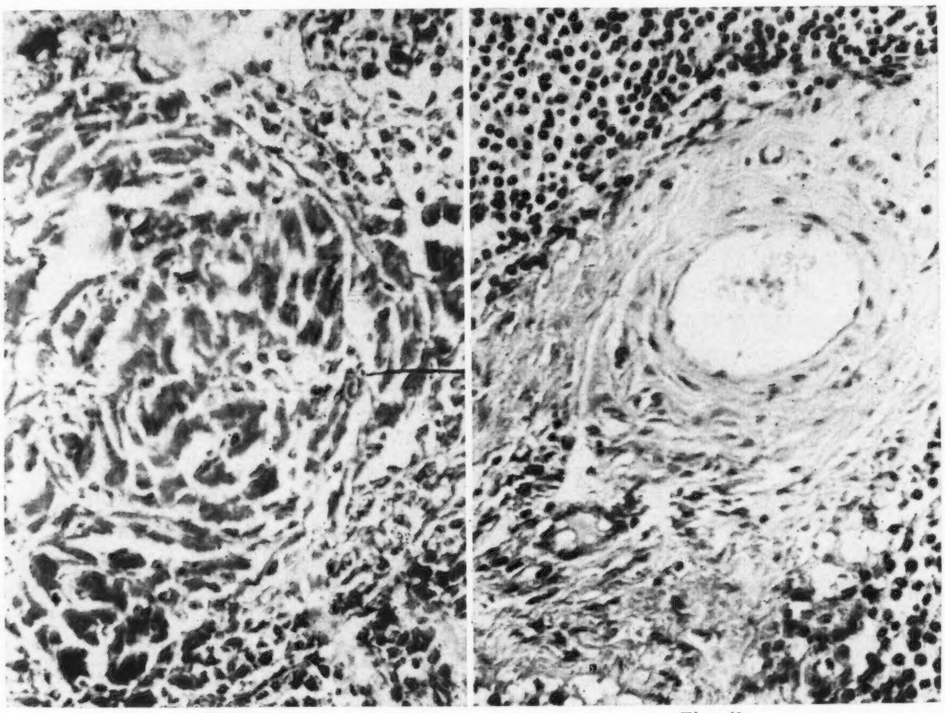


Fig. 1a. Fig. 1b.

Fig. 1a.—Note the marked pericapillary fibrous hyperplasia. The lumen of the vessel is of the usual size. Fig. 1b.—Note the marked periarterial fibrosis.

There was fusiform swelling of the joints of the fingers, and the left wrist, elbow and shoulders were tender. The epitrochlear lymph node on the left was the size of a sparrow's egg. Reflexes were normal. Radiological examination of all the joints revealed changes seen in rheumatoid arthritis. Electrocardiographic studies were negative.

The Mazzini test was negative. Blood cultures were repeatedly negative. Urinalysis was essentially negative at all times. The erythrocyte count was 3,800,000; white cell count 5,700; Hb. 10 g.; segmented leukocytes 64; stabs 4; lymphocytes 30; eosinophils 2. The erythrocyte sedimentation rate was 54 mm. Blood non-protein nitrogen 95 mg./100 c.c.; blood urea nitrogen 9.8; uric acid 2.2; A/G ratio 4.4/3.2.

A lymph node 4.5 x 3.2 cm. was examined by biopsy. The capsule was thin and transparent. The cut surface was pale grey, dry and gritty. The consistency was moderately firm. *Microscopically,* vessel changes were most prominent. The small arterioles showed pronounced periarterial fibrosis. The lymphoid tissue was hyperplastic with prominence of the germinal centres. The lymph sinuses were dilated and filled with lymphocytes, plasma cells, histiocytes and reticular cells.

Diagnosis: Lymph node—changes compatible with lupus erythematosus.

Following this report, preparations were made from the bone marrow and the "rosette" type of L.E. cells was found.

DISCUSSION

Fox and Rosahn[5] have observed œdema and engorgement of vessels as the most prominent histopathological features in the lymph nodes in lupus erythematosus. The lymph sinuses are swollen and distended with lymphocytes, plasma cells and histiocytes. In much of the postmortem material studied, the primary and secondary follicles are absent. The endothelial cells are swollen and hyperplastic. The presence of large neutrophilic to eosinophilic cells, three to four times as large as a lymphocyte and not unlike a megakaryocyte, scattered sporadically through the pulp is considered a constant finding by the above authors. They also refer to the perivascular cuffing by fibrous tissue of the arteries and arterioles—a feature frequently observed around the central arterioles of the spleen. Fox and Rosahn[5] further state that the histopathological changes noted in the lymph nodes are more or less constant and perhaps peculiar to the disease.

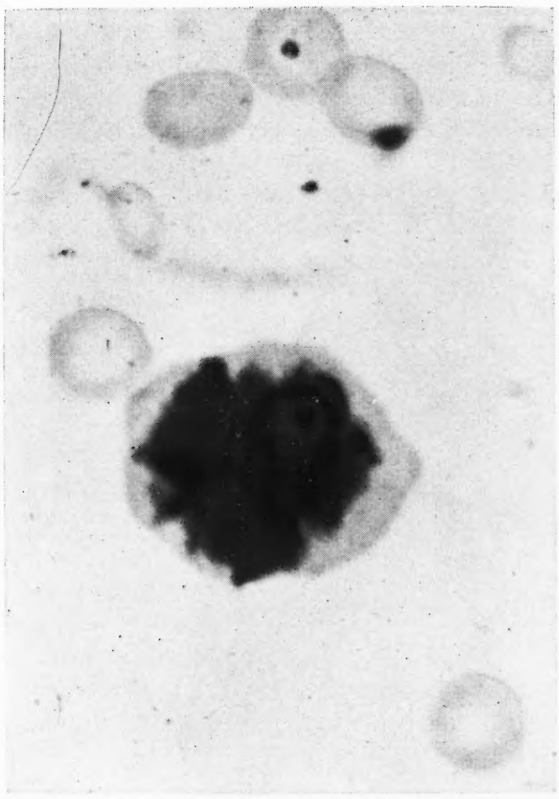


Fig. 2.—Note the rosette type of L. E. cell, the cells being distributed about the periphery of the large monocyte and centrally there is a deep purplish amorphous deposit.

This case report points up the value of lymph node biopsy in cases of suspected lupus erythematosus, if other diagnostic measures have not been fruitful and if an accessible lymph node can be excised and studied.

Summary

This report of a case, in which the diagnosis was based upon the suspicion of lupus erythematosus by virtue of the examination of a lymph node, demonstrates the value of lymph node biopsy in suspected cases of lupus erythematosus since L.E. cells are not always found in such cases. "Histopathological changes noted in the lymph nodes in L.E. are more or less constant and perhaps peculiar to the disease."[5]

References

1. Kaposi, M.: *Arch. Dermat. u. Syph.*, 4: 36, 1872.
2. Hardaway, W. A.: *J. Cutan. & Genito-Urin. Dis.*, 7: 447, 1889.
3. Low, R. C. and Rutherford, A.: *Brit. J. Dermat.*, 32: 326, 1920.
4. Lister, L. M. and Baker, R. D.: *Am. J. Med.*, 17: 851, 1954.
5. Fox, R. A. and Rosahn, P. D.: *Am. J. Path.*, 19: 73, 1943.

A CASE OF CARDIAC ANEURYSM*

L. LESK, M.D., *New Westminster, B.C.*

Many cases of cardiac aneurysm are reported in current medical literature. In the majority of these extensive myocardial degeneration had caused general enlargement of the heart, classified as aneurysm. We will confine our definition of cardiac aneurysm to pouches or sacs in the heart wall. The left ventricle is most often involved. Because of the difficulty in diagnosis, cardiac aneurysms are quite frequently recognized only at autopsy.

A case of cardiac aneurysm, although somewhat obscured by lung pathology, is presented. It is of interest that the patient lived fairly comfortably for a period of three and one-half years in spite of the extensive size of the aneurysm. Methods of diagnosis and possible means of prevention are discussed.

Mr. J.C., aged 62, was admitted to the Royal Columbian Hospital on March 1, 1951. He had been well and fit all his life except for brief attacks of bronchial asthma once or twice a year for the previous five or six years. He now complained of severe precordial pain, breathlessness, and being "very wheezy" for a 10-day period. This pain was relieved to a certain extent by heavy drinking. During most of the ten-day period he was up and about, remaining in bed for only brief periods.

On admission, he showed deep cyanosis of the lips, face and fingernails. He was dyspnœic and his respiratory rate was 40. The temperature was 105° F. Clinically, his heart was within normal limits and heart murmurs were not detected. He had a blood pressure of 105/70 mm. Hg. The pulse was 100, feeble and irregular. Auscultation of the lungs revealed mucoid crepitations, particularly at the right base. The white cell count was 12,700; differential count was within normal limits. Erythrocyte sedimentation rate 21. Kahn test negative. Urinalysis essentially negative.

Radiographic examination: Cardiac/thoracic ratio—22.5/30.7. The left ventricle predominates and its outline is very suggestive of aneurysmal dilatation; there is irregular lobulated enlargement of the left ventricle. Bronchial pneumonia is also present at the right base. The electrocardiogram indicated recent anterior myocardial infarction.

The patient made good progress and was discharged from hospital six weeks later. Following his discharge, he had several electrocardiographic examinations. On September 1, 1951, he had an elevation of the ST segment in V4 and V5. as well as QS complex in L1 and all precordial leads from V2-V6. On May 29, 1954, the ST segments returned to isoelectric. On September 1, 1954, there was again a slight elevation of ST in V4 and V5. These examinations were typical of extensive anterior myocardial damage compatible with radiographic diagnosis of ventricular aneurysm.

Second admission to hospital was on May 28, 1954. Since his first admission, the patient had been able to carry on as a plaster contractor, but at times he was

*Discussed at the Clinical Pathological Conference, Royal Columbian Hospital, February 12, 1955.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

very tired and dyspnœic. On this admission he had congestive heart failure with extensive right pleural effusion and atelectatic changes of the left lung. Œdema extended from the knees to the ankles of both legs. Radiographic examination showed right pleural effusion with atelectatic changes of the left lung. Both lung fields were congested and it was impossible to see any change in size of the aneurysm.

He was treated by rest, low salt diet, digitalis and diuretics. He improved and was discharged after three weeks' stay in hospital.

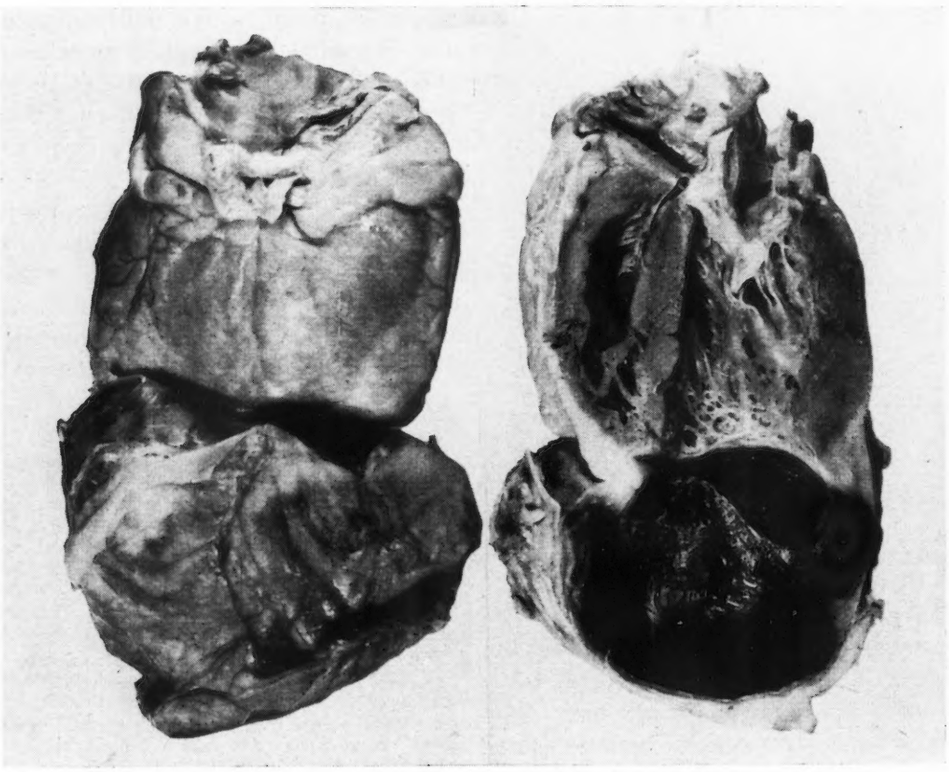


Fig. 1 Fig. 2

Fig. 1.—External view of heart (above) and large aneurysm (below) attached to wall of left ventricle. **Fig. 2.**—Interior of heart showing left ventricle (above) and aneurysm (below) showing large organized mural thrombus.

His final admission was on December 5, 1954. He died 12 hours later with a terminal bronchial pneumonia.

Pathological report on the heart.—The heart weighed 1,225 g. after all clots were removed. The anterolateral wall of the left ventricle was distorted by a huge aneurysm as large as the cavity of the ventricle itself and double the length of the heart in its long axis, and was four-fifths filled with well-organized laminated thrombus. The wall consisted of markedly thin myocardium and epicardium. The atria and auricular appendages were not abnormal. The valves showed no evidence of gross lesions, but in the wall of the left ventricle, in the distal one-third, there was old healed myocardium as well as a more recent lesion. The wall of the right ventricle was somewhat hypertrophied, averaging from five to 15 mm., but the infarction did not involve this portion of the heart.

Microscopic examination.— The left ventricle and the wall of the aneurysm showed the presence of healed myocardial infarction with myocardial necrosis, granulation tissue formation, inflammatory cell activity and deposits of hæmosiderin.

DISCUSSION

Cardiac aneurysms are difficult to diagnose. The history of coronary occlusion and electrocardiographic changes are often of little help. Radiography is usually a definite means of diagnosis, as in this case. It is interesting to note, first, the enormous size of the ventricular aneurysm which was approximately twice as long as the heart itself and, second, the excessive weight of the heart (about three to four times normal).

Ball[1] in 1938 stated that ventricular aneurysms are more likely to develop in patients allowed up too soon after an acute infarction, i.e. within a week or two after the development of the acute state. To support this claim we have the work of Sutton and Davis,[2] who in 1931 experimented on dogs. They found, following coronary artery ligation, that those animals allowed to exercise developed aneurysms while those left at rest did not.

It has also been found that rupture of cardiac aneurysms usually occurs within 10 days of the onset of the acute stage.

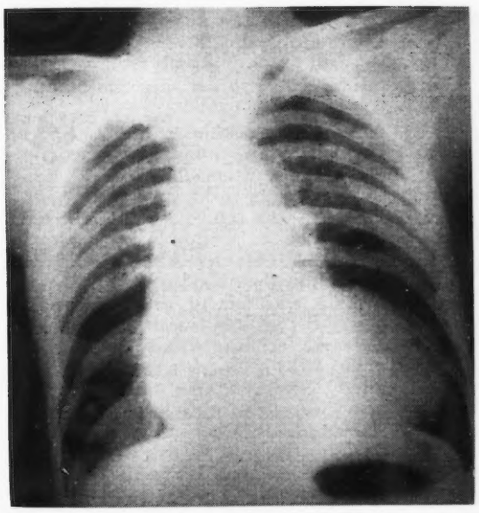


Fig. 3.—Radiographic appearance of chest showing large ventricular aneurysm.

In the case discussed here, it is most likely that the ventricular aneurysm developed on account of lack of rest and care. Briefly, the pathological changes in an acute infarction are leukocytosis, necrosis and softening of muscle fibre. This is followed by organization of scar tissue and finally fibrosis. If we bear this in mind, we should hesitate to advocate early ambulation. We can expect the possibility of ventricular aneurysm if we allow patients who have had uncomplicated attacks of acute infarction to be up and about before four to six weeks.

To minimize the risk of ventricular aneurysm, patients with acute infarction must be treated with the utmost care. Prolonged rest, both mental and physical, is of prime importance in avoiding such a major complication. Relief of pain, adequate oxygen administration, and attention to nutrition and sedation are also necessary in treatment.

SUMMARY

A case of ventricular aneurysm of unusually large size is presented, in which early ambulation was a likely cause. Radiographic examination is in most cases the only definite means of diagnosis. Adequate rest, both mental and physical, is one of the chief methods of treating acute infarction and avoiding cardiac aneurysm.

I wish to thank Dr. I. D. Maxwell for the photographs used in this paper.

REFERENCES

1. BALL, D.: *Am. Heart J.*, **16**: 203, 1938.
2. SUTTON, D. C. AND DAVIS, M. D.: *Arch. Int. Med.*, **48**: 1118, 1931.

CHRONIC ULCERATIVE COLITIS: RECOVERY AFTER LEUKOTOMY*

MILO TYNDEL, M.D., Ph.D. and
WILLIAM FORSTER, M.B., B.S., D.P.M.,
Brandon, Man.

ALTHOUGH the specific etiology of chronic ulcerative colitis has not yet been established, and the pathologist considers most cases as "idiopathic",[1] many writers now believe it to be a psychosomatic disorder.[2] In fact, there is an extensive literature dealing with the basic precipitating factors of acute or insidious onset and relapse.[3-5]

Most writers agree with regard to the narcissistic organization of the personality in this disease. As to precipitating factors, Murray[6] stressed the importance of conflicts centring around marital relationships, sexual relations, pregnancy and abortion. Sullivan and Chandler[7] found in every case that the patient had been involved in a situation to which it was difficult for him to adjust and to which he had responded with tension and anxiety. Daniels[8, 9] noted the presence of a self-destructive, suicidal component, often after the illness or death of a near relative, particularly the mother, but he also noted that loss of money and financial worry act as precipitating factors.

After various forms of bereavement the patient, unable to face the situation alone, experiences intensification of his need for dependency. This is a threat to him, since it results in a tendency to regress to childhood behaviour patterns. Consequently the feelings of dependency are denied and are covered up by the opposite—feelings of aggression. When regression to childhood behaviour patterns occurs, the latter are coloured by phantasies of extreme violence, and by asocial behaviour characterized by aggressiveness and overcritical, demanding, or "spoiled child" attitudes.[10]

In Sperling's opinion,[11] ulcerative colitis represents the "somatic dramatization" of melancholia.

Dealing with the physiological mechanism, Portis[12] considers that certain emotional conflicts affect the colon through the vegetative centres and parasympathetic pathways. This is followed by surface digestion of the mucosa, preparing the way for bacterial invasion. On the

*From the Hospital for Mental Diseases, Brandon.

basis of the experimental work of Karl Meyer and his associates,[13, 14] Prudden *et al.* believe that lysozyme, a mucolytic enzyme, increases through parasympathetic stimulation and deprives the mucosa of its protective mucin so that it becomes more vulnerable to the tryptic enzyme present in the intestinal content. The initial localization of the ulceration is always in that part of the large bowel supplied by the sacropelvic portion of the parasympathetic. The locus of the signs in early cases is thus significant, and confirms the psychiatric observation that the psychological stimuli concerned pertain to the act of excretion.

It is probable that local somatic factors may determine whether the regressive evasion of a life situation producing conflict evokes in one patient entirely psychological symptoms (obsessive-compulsive pictures or paranoid delusions) and in another an organic bowel disturbance.

Finally, Alexander,[4] in a thorough evaluation of the emotional factors associated with excretion from an early age, shows that patients having ulcerative colitis closely resemble those suffering from other forms of diarrhœa. Defæcation in infancy is associated with attitudes of "giving" and "accomplishing". Regression to this anal level is extremely common both in neurotics and in patients who tend towards projection and psychotic episodes. Alexander assumes that some specific local somatic factors may be responsible for anal regression producing ulceration of the bowl in some patients.

The problems and effects of prefrontal leukotomy will not be discussed here. There is already an extensive literature on the subject.[15, 16] The most important effect of the operation is relief of tension and anxiety in chronic psychoses and obsessional neuroses.

The patient, a 35-year-old white married woman, was admitted to the Brandon Hospital for Mental Diseases in catatonic stupor. There was no family history of psychoses or bowel disorders. Her birth had been normal; she had had the usual childhood diseases, and underwent tonsillectomy at 4 years and appendectomy at 7, pleurisy at 18, and removal of ovarian cyst at 26. She attended school from 7 to 15, did well, and adjusted to other children and her teachers. Menarche occurred at 14, for which she was partially prepared but nevertheless was upset. She had considerable dysmenorrhœa. After leaving school she worked as waitress and sales clerk, changing jobs either because she did not care for the work or because of illness. She was liable to depression. She smoked and drank considerably until about two years before admission, when she stopped drinking because she thought the beer gave her diarrhœa. She was promiscuous from the age of 19, and promiscuity continued after marriage. Her first marriage ended in divorce at 26; her second husband left her when she was 33. She had never had strong sexual feelings and experienced orgasm only twice in her life. She became pregnant at 19.

At 22 she suffered concussion in a car accident, and following this had many complaints, particularly of headache and "nervous stomach". About two years before admission she began to have diarrhœa and almost continuous abdominal pain, and passed bright red blood and mucus in her stools, as well as tarry stools. She had the urge to defæcate almost constantly, and never felt she was able to empty the rectum completely. She lost appetite and weight and felt ill with increasing weakness. About a year before admission she began to have "seizures"; she would feel hot, everything would appear red, and she would fall unconscious for 10 to 15 minutes. She never injured herself, bit her tongue, twitched, or voided, and she never had the seizures when alone. They stopped "when the weather got hot", but from then on she believed she was dead, that her stomach had killed her and that she had no pulse. She had the delusions that her rectum and vagina were covered with skin, that she had no feeling, and that there were sacks of fæcal masses inside her. She kept to her bed, neglected herself, was hostile and negativistic. She would sit in the corner, nude, exploring her rectum with her fingers.

On admission and during her hospital stay she presented the clinical picture of catatonic schizophrenia. She masturbated and continually tried to empty her rectum with her fingers. Physically, she had no serious abnormalities apart from wasting, a moderate normochromic anæmia, and some tenderness on palpation along the large intestine. There was an occasional leukocytosis, eosinophilia and increased sedimentation rate. Her fæces were covered with blood and mucus, and at times pus. When these were absent, occult blood was a constant finding. X-ray studies showed no malignancy. Skull radiographs and EEG were negative.

Repeated physical treatments (electroshock, insulin coma, and electrostimulation with the Reiter apparatus) were followed by only slight and transient improvement. After prefrontal leukotomy, however, both her psychosis and her physical condition improved rapidly, including the symptoms and signs of ulcerative colitis. After an uneventful postoperative course she was discharged and has remained well for a year.

COMMENT

An emotionally unstable personality with hypochondriasis and chronic diarrhœa developed the picture of catatonic schizophrenia during difficult and apparently unbearable life situations. It is probable that the same psychological stress caused the concomitant ulcerative colitis in the presence of chronic mechanical irritation of the rectum by manipulation with the fingers. Prefrontal leukotomy had a considerable effect in relieving tension, leading to marked improvement in the catatonic symptoms and delusions, as well as in the somatic manifestations in the large bowel. Lessening of the emotional tension also contributed to the latter improvement by cutting out the digital irritation of the rectum.

It would seem that somatic conditions, probably due to emotional stress, should also be

taken into account when the question of psychosurgery arises in chronic psychiatric disorders.

SUMMARY

A case of chronic ulcerative colitis in a catatonic schizophrenic is presented. Both conditions cleared up after prefrontal leukotomy. In the discussion of the mechanisms of chronic ulcerative colitis the belief is stressed that: (a) it is due to emotional stress which may also lead to psychotic manifestations; (b) in the presence of local somatic changes in the intestine, the picture of chronic ulcerative colitis may develop.

Our thanks are due to Dr. Stuart Schultz, Medical Superintendent, Brandon Hospital for Mental Diseases, for permission to publish this case.

REFERENCES

1. BOYD, W.: A text-book of pathology, 6th ed. rev., Lea and Febiger, Philadelphia, 1953.
2. MARCHELLA, T. E., *In*: Principles of internal medicine, ed. T. R. Harrison *et al.*, Blakiston Company, New York, 1952.
3. WEISS, E. AND ENGLISH, O. S.: Psychosomatic medicine, 2nd ed., W. B. Saunders Company, Philadelphia, 1949.
4. ALEXANDER, F.: Psychosomatic medicine, W. W. Norton & Company, Inc., New York, 1950.
5. DUNBAR, H. F.: Mind and body: psychosomatic medicine, Random House, New York, 1947.
6. MURRAY, C. D.: *J. Nerv. & Ment. Dis.*, **72:** 617, 1930.
7. SULLIVAN, A. J. AND CHANDLER, C. A.: *Yale J. Biol. & Med.*, **4:** 779, 1932.
8. DANIELS, G. E.: *New England J. Med.*, **226:** 178, 1942.
9. *Idem*: *M. Clin. North America*, **28:** 593, 1944.
10. LINDEMANN, E.: *Arch. Neurol. & Psychiat.*, **53:** 222, 1945.
11. SPERLING, M.: *Psychoanalyt. Quart.*, **15:** 302, 1946.
12. PORTIS, S. A.: *J. A. M. A.*, **139:** 208, 1949.
13. MEYER, K. *et al.*: *Am. J. Med.*, **5:** 482, 1948.
14. *Idem*: *Ibid.*, **5:** 496, 1948.
15. FREEMAN, W. AND WATTS, J. W.: Psychosurgery in the treatment of mental disorders and intractable pain, Charles C Thomas, Springfield, Ill., 1950.
16. KALINOWSKY, L. B. AND HOCH, P. H.: Shock treatments, psychosurgery and other somatic treatments in psychiatry, 2nd ed. rev., Grune & Stratton, Inc., New York, 1951.

PRIMARY TUMOURS OF RIB

In a Hunterian Lecture, 50 personal and some further cases of rib tumours are discussed. Chondromas and chondrosarcomas are commonest and originate in the centre of the bone, expanding it. They are usually of long standing and are seen when pain develops, usually in young adults. Local recurrence after excision does not necessarily indicate malignant change. Drastic surgical removal is justifiable unless metastases are obviously present.

The lesions that mimic cartilaginous tumours—fibrous dysplasia, lipoid granuloma, myeloma, osteoclastoma and chronic inflammation – are differentiated. Secondary tumours, especially endothelioma of the pleura, are sometimes difficult, or metastases from an undiagnosed primary in the kidney, adrenal, bronchus or thyroid may occur. Radiographs are necessary but their interpretation should be viewed with suspicion.—N. R. Barrett: *Brit. J. Surg.*, 43: 113, 1955.

Special Article

TEACHING OF PREVENTIVE MEDICINE IN CANADA

G. R. F. ELLIOT, M.D., C.M., D.P.H.,*
Vancouver, B.C.

RESOLUTION ON PUBLIC HEALTH TEACHING IN CANADA[1]

"WITHIN RECENT YEARS the practice of medicine has changed. Old problems have been replaced by others, as yet, unsolved. No longer does the doctor contend unavailingly with numbers of communicable diseases. Rather, he is faced with complex problems of an aging population, accidents and industrial disease, mental illness and many others. These problems force the doctor to adjust the focus of his attention and necessitate changes in the content of courses offered the undergraduate medical student. Nowhere have the changes been more apparent than in the areas of public health and preventive medicine. There is little need to stress that the preventive aspects of clinical medicine never required more emphasis, while the values of restorative methods only begin to be recognized.

"Much of value would accrue to all medical schools in the development of better courses if detailed information were available on existing undergraduate courses in public health and preventive medicine offered in Canadian medical schools. The details should embrace staffing, teaching methods and facilities, timetables, course content, research activities and the integration and relationship with clinical subjects including the extent of combined teaching with clinical departments. Such information would stimulate the medical schools to integrate instruction in these areas into the total educational programme and, thereby, achieve better preparation of the future practitioners of clinical medicine.

"To this end, it was recommended that the Canadian Medical Association undertake a survey and report on undergraduate instruction in Public Health and Preventive Medicine as conducted in the medical schools of Canada."

The above is a resolution passed by the Public Health Committee of the Canadian Medical Association in 1955. This Public Health Committee had a membership representing all ten divisions of the Canadian Medical Association and included public health physicians, general practitioners, hospital administrators, pædiatricians, psychiatrists, obstetricians and gynæcologists; the committee supported this resolution unanimously. The resolution has been tabled, since a committee of the Association of Canadian Medical Colleges under Dean Chester Stewart of Dalhousie University has this matter under study. It is felt that Dean Stewart's report should receive close study by the incoming Public Health Committee of the Canadian Medical Association in order to confirm or refute the above resolution. This has been recommended by the

*Assistant Provincial Health Officer, Province of British Columbia, and Assistant Professor, Department of Public Health, University of British Columbia.

Public Health Committee of the Canadian Medical Association.*

If one accepts the above resolution and recalls the teaching hours in each university delegated to public health, varying from 56-214 (Table I), the following question comes naturally: Why does the teaching of preventive medicine require review? One wonders whether perhaps some of us are not becoming ivory-tower dwellers and I refer not only to departments of public health in universities, but also to local, municipal, provincial and federal departments of health.

TABLE I.

TEACHING HOURS IN PUBLIC HEALTH IN CANADIAN UNIVERSITIES, 1951 - 52

University	*1st year*	*2nd year*	*3rd year*	*4th year*	*Total*
British Columbia	22	80	48	64	214
Western Ontario	64	16	38	48	166
Montreal	—	25	—	45	70
*Queen's	(3) —	(4) 150	(5) 60	(6) —	210
Toronto	8	32	64	80	184
Ottawa	(2) —	(3) —	(4) 67	(5) 61	128
Dalhousie	32	48	74	—	154
Laval	—	—	28	28	56
Alberta	—	—	112	—	112
Manitoba	17	30	30	35	112
McGill	—	78	72	—	150

Source:—Faculty of Medicine, University of British Columbia.
*Medical courses longer than 4 years.

Each of us is not always *persona grata* with the practising medical profession, and this is to be expected since our different concepts of community health programmes will clash at times. However, even in the cloistered walls of some universities the public health department is looked upon by some of its sister departments with a bit of scepticism. We know that today there has been talk of removing public health as an examination requirement for the L.M.C.C. This matter has occupied the attention of the Medical Council of Canada in recent years, but fortunately for both the medical profession and the people of Canada, the Medical Council has taken no action. There are many other examples of this somewhat invidious situation, and I am sure each of us can recall experiences which emphasize the fact that physicians in public health are not fully accepted nor are their concepts understood by the practising or teaching profession.

The pioneer days of preventive medicine went by many years ago. Preventive medicine has proved its worth, and if weighed against curative medicine would be found more effective and less costly. Often, however, preventive medicine is found to occupy only a small part in medical teaching and appears late in the curriculum at a time when the student's mind is already monopolized by the clinical and laboratory aspects of disease; at this stage the student, having had no instruction in the social sciences, is lost in a strange country.

It has been said that medical students should come to realize that "Our best clinicians in these days are our most active practitioners of preventive medicine in their day-to-day clinical work. Our best local public health departments today are as much concerned with planning comprehensive medical care for the citizens of their community as with carrying out their traditional six-point public health programme of prevention."[2]

If this is the type of graduate we require, and I believe it is, it should be quite apparent that ways and means must be found to bring about a closer integration between the teaching of the clinical and preventive aspects of medicine in its broadest sense.

I feel that the Department of Public Health, University of British Columbia, is making some attempt to meet this problem. You will recall that the University of British Columbia leads all Canadian universities in its allotted hours for the teaching of preventive medicine. The staff at the University of British Columbia is made up of one full-time professor and a part-time associate professor, as well as two assistant professors and several lecturers. The professor, associate professor and assistant professors plan policy and programme in regard to the teaching, and the recommendations of this group are discussed with the Faculty. The associate and assistant professors all hold senior positions with large health departments, and the additional lecturers required are drawn from senior specialists in health and welfare departments and voluntary health agencies in the community.

It should be apparent to us all that medical schools in Canada should have a minimum of three full-time medical men in their department of public health, if the challenge previously mentioned is to be met. The professor and head of the department should have had broad training in the field of public health and preventive medicine and, above all, should be a teacher par excellence. The first associate, it is felt, should be primarily trained in public health but with special training in pædiatrics, epidemiology or mental hygiene, dependent on the research activities of that particular school. The second associate must be a medical biostatistician, since biostatistics are poorly taught in most medical schools in Canada today and many practitioners are quite unable to interpret even the simplest of statistical procedures.

Of equal importance is the fact that the services of medical biostatisticians are too often not available to the various departments in a faculty of medicine. This lack of service prevents a critical analysis of clinical material being pre-

*General Council of the Canadian Medical Association on June 17, 1955, accepted this recommendation. At this time Dean Chester Stewart on behalf of the Association of Canadian Medical Colleges extended an invitation to the Public Health Committee of the Canadian Medical Association to participate with the Association of the Canadian Medical Colleges in the survey and report on undergraduate instruction in Public Health and Preventive Medicine as conducted in medical schools of Canada.

sented in the medical literature and, moreover, does not allow planned studies or the presentation of accurate findings in the research programmes so vital to a wideawake faculty of medicine. It is quite logical that the services of the medical biostatistician in the department of public health should be available to other departments of the faculty of medicine.

The three full-time personnel members in the department of public health must be research-minded and, moreover, capable of undertaking some research in their own special field. It is ludicrous to think that preventive medicine can be taught properly and adequately by a group of part-time men, who in some instances have not too much interest (except in the honour of a university appointment) and in most instances insufficient time to develop the programme as it must be developed. Part-time men should never be used simply because they are well known or occupy some important position. When used, part-time men must be integrated into the teaching programme and must have assigned to them specific portions of the curriculum; in other words, part-time men should generally be specialists in a field of public health, whether it be administration, local health services, pædiatrics, mental hygiene or civil defence.

The development of a satisfactory programme for teaching public health is much more difficult, in my opinion, than development of a programme in the clinical fields, and for this reason three full-time men are needed.

To teach preventive medicine properly it is necessary not only to teach basic public health but also to teach the student about the community and its resources as they relate directly and indirectly to the promotion of health and prevention of disease. This includes the understanding of the role of governmental and voluntary health agencies, social and welfare agencies and legal resources. If the student does not understand all this, he will have no appreciation when he graduates of his role as a physician in relation to comprehensive health services. If this concept of teaching is to be put in practice, it requires a good deal of organization not only in the classroom but, above all, in well planned and supervised field training in the community.

Participation in the oral examination of students for the L.M.C.C. during the past several years makes one a little depressed, as it is too often evident that the recent graduate is not aware of his responsibility in comprehensive medical-care planning. Many students can describe a septic tank to its last dimension, construct a disinfestor and even produce line sketches for a pit latrine. Granted, this is important in isolated instances, but to us it is public health teaching at least 20 years old. Do not our teachers of public health realize that in almost every area of Canada today there are sanitary inspectors and public health engineers whose responsibility it is to give advice on these matters?

It should be emphatically stated that, with the limited time available in some of the universities, public health teaching time would be better spent ensuring that their graduates, who in the main will be clinicians, had a knowledge of public health that was more related to problems of medical-care planning in the community in which they choose to practise.

As an example of the changing emphasis needed in teaching of public health, one wonders if sufficient stress is being put on "life years lost" as a new concept in the teaching of vital statistics, and upon utilization of the data obtained by the Canada Sickness Survey

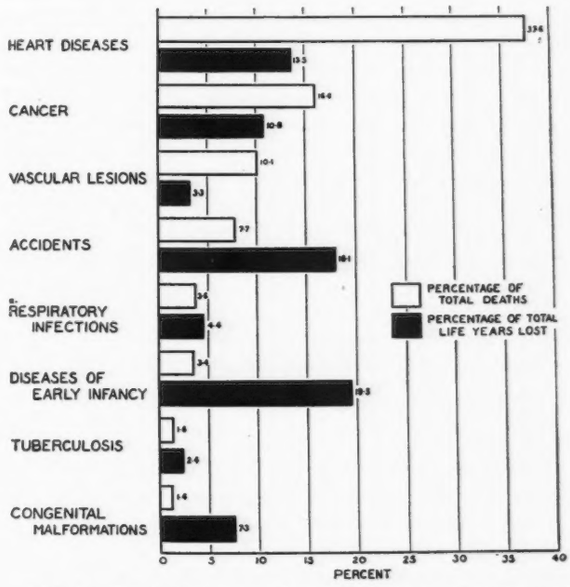


Fig. 1.—Specified causes of mortality as a percentage of total deaths and of total life years lost, British Columbia, 1952 (life years lost under age 70). *Respiratory infections include bronchitis, influenza and pneumonia. (Source: Division of Vital Statistics, British Columbia.)

for the detailed study of morbidity. We know today that cardiovascular disease and malignancy are our leading causes of death, but are we giving sufficient emphasis to those causes of death, such as diseases of early infancy and accidents, which are more important to the economy of Canada and for which perhaps we can develop a more realistic programme? The term "life years lost" was developed by Dickinson and Welker in an article entitled "What is the Leading Cause of Death? Two New Measures",[3] and I would highly recommend the introduction of this new concept to all departments of public health in faculties of medicine (Fig. 1).

There are several basic essentials around which a programme for teaching public health should develop. These are as follows:

1. Public health teaching should occupy at least 200 hours in any four-year course. How-

ever, this time should not be asked for unless the teaching programme is worthy of it and the staff and facilities are present.

2. There should be at least three full-time medical men, who should carry up to 85% of the teaching. Part-time men should be used only when they are highly skilled in some field and only when they have a real contribution to make.

3. Relationships should be developed with clinical departments, the medical profession, and government and voluntary health agencies.

(a) *Clinical Departments.* – Many teaching clinicians, though possessing extensive knowledge, are limited in their view of a patient's problems. A typical story on the ward round is this: A child with acute rheumatic fever is seen, there is talk about particular murmurs and their significance, the degree of heart failure present, and the relative merits of treatment, and often it is left at that. All too seldom is inquiry made regarding the siblings, the home situation, the problem in the community, the presence or absence of facilities to care for such a child at home and the other medical-care programmes involved. The student in such a situation becomes lesion-minded rather than socially minded. Many of you will recall similar situations in relation to tuberculosis, poliomyelitis, arthritis and cancer, to mention only a few comparable diseases. This is not the fault of the clinicians, since we too in preventive medicine tend to build walls around what we know best.

Members of a wide-awake teaching department of public health should endeavour to attend ward rounds whenever cases are presented which require comprehensive medical planning, whether it be for the patient or the family, and they should ensure that these problems are brought up for discussion. Teaching departments of preventive medicine must woo and wed the clinical departments and develop rehabilitation thinking for both the patient and the family whenever indicated. As mentioned earlier, this is the responsibility of preventive medicine, since only preventive medicine knows, or should know, where the necessary facilities are in the community to develop such programmes. Clinico-pathological rounds are one of the most successful methods of modern teaching; perhaps the time has arrived for departments of public health to introduce socio-clinico-pathological rounds.

(b) *Medical Profession.* – Teaching departments of preventive medicine can often assist organized medicine in fields such as medical biostatistics, serve on committees dealing with postgraduate training, and offer the advice and guidance of the specialized field of preventive medicine to organized medicine. Teaching departments of preventive medicine should offer these services and not wait to be asked. It is only by such methods and by demonstrating an eager willingness to assist whenever possible that organized medicine and preventive medicine will work as a team and enter into joint planning for comprehensive medical-care programmes. Public health departments are strategically situated in their opportunities to assist the medical profession and they must take full advantage of this opportunity.

(c) *Government and Voluntary Health Agencies.*—There is no need to elaborate on this last area in the development of relationships. Suffice it to say that preventive medicine cannot be taught in any medical school unless the relationship with government and voluntary health agencies is at the highest possible level.

Not only must the relationship be good, but again teaching departments of preventive medicine should be able to assist government health agencies, particularly in the educational field. Summer internships for senior medical students in local health units should be developed. This is not for recruitment of health officers, but rather serves a dual purpose; firstly, the health unit benefits from having senior medical students attached to it and, secondly, the student himself brings back to his fellow-students basic information regarding the practice of preventive medicine in the field.

An interesting development in the Department of Public Health, Faculty of Medicine, University of British Columbia, is the present planning for a teaching fellowship of a year's duration for health unit directors wishing to take postgraduate training. The cost of this should be borne by the Faculty of Medicine and employing agency equally. It is emphasized that, although this teaching fellowship would be in the Department of Public Health, one-third of the time should be spent in one or more of the clinical departments, dependent on the type of postgraduate training required.

It is emphasized that no department of public health of a faculty of medicine can expect to develop the necessary relationship with the sister clinical department, the medical profession or government and voluntary health agencies and thus draw on all these resources, unless the department itself can make a useful contribution in return. There is a great opportunity here, since with the necessary staff recommended above the department of public health should be both able and anxious to assist the sister clinical department of biostatistics, offer assistance to the medical profession and official government agencies in postgraduate medical education and comprehensive medical-care planning, and conduct surveys of community health problems.

An excellent example of the contribution which can be made by a department in the faculty of medicine is seen in British Columbia. It is quite apparent that few provincial or municipal health departments in Canada can offer a satisfactory consultative service in pædiatrics to local health

services or the family physician. In British Columbia the Department of Pædiatrics, Faculty of Medicine, has been officially designated as Consultant in Child Care to the Health Branch, Department of Health and Welfare, Province of British Columbia. This development has been of untold benefit to the people of British Columbia, and most other provinces in Canada would do well to consider a similar appointment.

Finally, one wonders why the department of public health in a Canadian university, or a group of Canadian authorities on public health, have not published a textbook on the subject. There is an urgent need for such a textbook with a Canadian viewpoint, since today the accepted texts are British or American and neither has any concept of the organization or administration of health services across Canada. It is known that in the field of pædiatrics such a textbook is now being prepared by pædiatric authorities across Canada. The need is even greater in the field of public health for such a textbook for the use of the future physicians of Canada.

In conclusion, it appears that many teachers of preventive medicine today are living in ivory towers; contact has been lost with the sister clinical department, the needs of the community in medical-care planning are being neglected and, finally, medical students are being graduated without any concept of their over-all responsibility to the people of Canada.

A few of us, whether we represent teachers or practitioners of public health, have a tendency to believe that our work is self-sufficient. Stuart Chase has described the danger of this type of thinking in these words:

"We will become like soldiers lying in isolated foxholes without means of communication . . . yet the social sciences are concerned with different species of the same critter—man—and the notion that we can abstract the medical, the economic or psychological aspect of his behaviour without regard to the rest is utter nonsense."[4]

REFERENCES

1. Canadian Medical Association Public Health Committee Report: *Canad. M. A. J.*, **73**: 348, 1355.
2. Conference of Professors of Preventive Medicine: Preventive medicine in medical schools, report of Colorado Springs Conference, November 1952, Association of American Medical Colleges, Chicago, 1953.
3. DICKINSON, F. G. AND WELKER, E. L.: Bulletin 64, Bureau of Medical Economic Research, American Medical Association, 1948.
4. CHASE, S.: The proper study of mankind, Harper & Brothers, New York, 1948, p. 45.

CORRIGENDUM

In the article entitled "Acute Stenosis of the Right Ventricle Following Septal Infarction" by H. J. Dempsey and R. P. Carere, published in the issue of February 1 (74: 212, 1956), lines 9 and 10 of the fifth paragraph of the description of the case (page 212, second column) should read: "and diastolic murmur was now heard in the left fourth and fifth intercostal spaces near the sternum. A few scattered fine moist rales were heard at both lung bases."

Clinical and Laboratory Notes

THE INFLUENCE OF METEOROLOGICAL FACTORS ON CERTAIN BIOLOGICAL EXPERIMENTS*

ROLAND FISCHER,† M.A., Ph.D.(Basel),
Saskatoon, Sask.

THAT METEOROTROPIC FACTORS may influence and alter medical as well as surgical procedures has been stressed since the time of Hippocrates.[9] The aim of this paper is to illustrate briefly how sudden changes in barometric pressure can affect the outcome of certain biological or pharmacological experiments.

Toxicity studies where tadpoles (larvæ) of different species of frogs have been used are described in the literature,[1] but so far no data are available to show how such experiments are subject to meteorotropic influences. Our example illustrating this point refers to experiments performed with the larvæ of the South African frog *Xenopus lævis* Daudin.

Previously it had been reported that ammonia appears to be one of the main toxic factors in the urine of schizophrenics[1] as measured by the *Xenopus* larvæ test.[2] The toxicity‡ of urine of schizophrenics and healthy controls could be related to their ammonia content, which we determined independently. It was also found that the toxicity of urine diminishes significantly if the latter is adjusted to pH 7.5 and boiled for a half hour. The concentration range 2.5-5 mg. % of ammonia, administered as ammonium chloride to the larvæ, caused a mortality of 50-100% in 24 hours; this was also the range of concentration in urine which we have found to be toxic.

According to our observations in performing hundreds of toxicity experiments, the death of larvæ in the urine-water milieu always occurs after a time lag. Munro[3] has shown that the main nitrogen excretion product of *Xenopus* larvæ is ammonia; hence the metabolism of the larvæ alkalinizes the experimental urine-water milieu (we measured in 1,000 c.c. of water with 30 tadpoles 14 days of age, raised and kept at 20° C., pH shifts in 24 hours as high as 1.0 unit, e.g. from pH 7.4 to 8.4), and thus the previously "bound" basic volatile substances of the urine liberated—ammonia being the main component among them—kill the tadpoles.

*From the Psychiatric Research Unit, Saskatchewan Department of Public Health.
†Research Biochemist and Biologist, University Hospital, Psychiatric Research Laboratory, Saskatoon.
‡The sensitivity of the larvæ was measured on each experimental day by exposing them to standard concentrations of aqueous mescaline hydrochloride.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

The gradual decrease in toxicity of urine of patients during remission is paralleled by a gradual decrease in acidity as well as in ammonia content of the urine. The unboiled urine of some schizophrenics is not toxic; the very same urines are not acidic.

However, certain meteorological factors apparently influence the outcome of toxicity experiments with *Xenopus* tadpoles.

TABLE I.

MORTALITY (IN %) OF 14-DAY-OLD XENOPUS LARVÆ

	February 23: during homogeneous weather, in 50 c.c. urine/litre water	*February 25: shortly before arrival of major frontal passage, in 60 c.c. urine/litre water**
Schizophrenics' urine	40.0	20.0
Normal urine	20.0	13.3
Schizophrenics' urine boiled at pH 7.5 30 minutes	20.0	66.6
Normal urine boiled at pH 7.5 for 30 minutes	13.3	33.3

Experimental days characterized by sudden major changes in cold or warm weather fronts, i.e. frontal passages with concomitant fall or rise in *barometric pressure*, 12 hours before the beginning of experiments, have opposing effects on the mortality of larvæ, especially if the salt concentration is raised above certain limits. Such a rise occurs, for example, when the acidic schizophrenic's urine is adjusted to pH 7.5 before boiling. This operation raises the salt concentration more in the schizophrenic's than in normal urine, since the latter is usually less acidic to begin with.* An example is given in Table I.

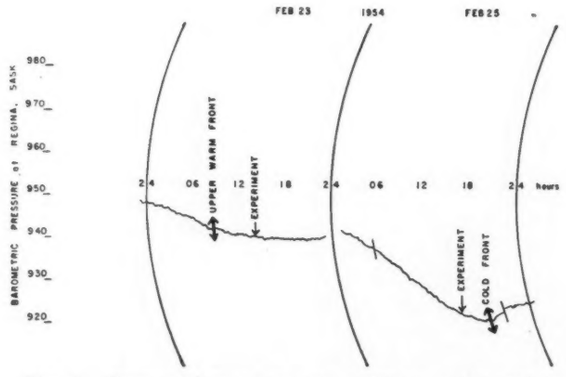


Fig. 1.—Barometric pressure (in millibars, corrected to sea level) during "homogeneous" weather, and just before a cold front. The experimental days are those in Table I.

*The concentration of the urine in water was raised during the second experiment to counterbalance a slight resistance of the larvæ due to their being two days older.

Thus it appears justifiable to perform the experiments only on days characterized by a steady barometric pressure or to adjust the salt concentration of all the experimental fluids under study by adjusting them to equal conductivity. If these precautions are not taken, experimental data gathered on days with falling or rising barometric pressure cannot be evaluated together with data obtained on days characterized by a steady pressure.

Experimental evidence shows that there is a relationship between the strength of the weather front on the one hand and the presensitizing ability of higher salt concentrations on the other. Weak, medium and strong frontal passages shift the mortality rate of *Xenopus* larvæ first in the highest, next in the medium, and finally in the lowest urine-water (salt) concentrations.

We might interpret the influence of higher salt concentrations by the fact that the salt concentration of a frog-Ringer solution is one-third lower than the 0.9% of mammalian physiological salt solution.

Not only *Xenopus* larvæ experiments but also other biological phenomena are influenced by meteorotropic factors. Reiter[4] has shown recently in extensive studies that significant differences exist between the frequency of such events as births, suicides, rapes, and road accidents when compared under different biotropical weather situations. Epileptic seizures,[5] thrombosis,[6, 7] death rate of hospitalized population,[8] pH of the blood[9] and even stock market variations[10] as well as the response of theatre audiences,[11] are also known to be significantly influenced by meteorobiological factors. Frontal passages are known to be able to shift significantly the rhythm of recurrence in periodic relapsing catatonia,[12] and fluctuations in gustatory sensitivity of patients with specific brain lesions have been reported by Boernstein[13] as being subject to changes in weather.

CONCLUSIONS

Meteorotropic situations characterized by a sudden fall or rise in barometric pressure (e.g. frontal passages) exert a major influence on pharmacological experiments performed with larvæ of *Xenopus lævis*.

Days with steady barometric pressure and a water milieu of defined conductivity are requirements without which the above experiments cannot be evaluated.

These studies are published under the auspices of the Saskatchewan Committee on Schizophrenia Research and were supported by the Department of National Health and Welfare, Ottawa.

My sincere thanks are due to Mr. W. Fryers, Officer-in-Charge, Air Services, Meteorological Division, Regina, for the weather data; and to Mrs. M. Clowes, R.T., for technical assistance. Chorion gonadotropic hormone, for the breeding of *Xenopus* larvæ, was kindly supplied as Pregnyl through the courtesy of Organon Inc.

REFERENCES

1. FISCHER, R.: *Science*, **118**: 409, 1953; **120**: 505, 1954.
2. *Idem*: *Naturwissenschaften*, **24**: 301, 1955.
3. MUNRO, A. F.: *Biochem. J.*, **54**: 29, 1953.
4. REITER, R.: *Arch. Meteorol. Geophysik und Bioklimatologie, Serie B*, **4**: 327, 1953.
5. TREUHEIT, A.: *Nervenarzt*, **24**: 90, 1953.
6. CORDES, H.: *Fronten, Steuerung und Luftkörper*, **8**: 45, 1941.
7. KOLLER, T.: *Schweiz. med. Wchnschr.*, **73**: 85, 1943.
8. KERDO, I.: *Orvosi Hetilap*, **14**: 430, 1949.
9. PETERSEN, W. F.: The patient and the weather, I-IV, Edwards Brothers Inc., Ann Arbor, Mich., 1934-1938.
10. SMITH, E. L.: Personal communication.
11. ZOLOTOW, M.: *Theatre Arts*, **38**: 78, June 1954.
12. GJESSING, R.: *Arch. Psychiat.*, **191**: 221, 1953.
13. BOERNSTEIN, W. S.: Personal communication.

PNEUMOPERITONEUM IN THE DIAGNOSIS OF PELVIC DISEASE*

GODFREY L. GALE, M.B., F.R.C.S.(Edin.)
and R. H. GIFFIN, M.O.S.R., *Weston, Ont.*

THE OBJECT OF THIS PAPER is to describe a simple technique for outlining the pelvic organs with the help of a pneumoperitoneum. It is most useful in the female pelvis where the uterus, Fallopian tubes and ovaries can often be demonstrated remarkably well. Attempts to demonstrate, for instance, the prostate gland in the male have not been so successful.

The idea for this procedure was suggested by Sante in his *Manual of Roentgenological Technique*.[1] At the time the present work was done, the authors were not aware that it had ever been used clinically, but in fact several papers have been published on this technique. Two recent ones have been concerned with the diagnosis of sex-endocrine abnormalities.[2, 3] One such case was that of 11-week-old infant who had 100 c.c. of oxygen injected into the peritoneal cavity in order to outline the pelvic organs.

INDICATIONS

This technique may be used for any female patient of any age from infancy up who has evidence of a pelvic lesion. It is perhaps specially valuable in childhood or in an unmarried woman in whom a pelvic examination, and especially a bimanual examination, is difficult. It has been used particularly in investigation of sex-endocrine disorders in children. It should be useful for differentiating uterine from ovarian neoplasms, and adnexal inflammatory masses from adnexal neoplasms.

CONTRAINDICATIONS

Perhaps the most important contraindication, especially in a tuberculosis sanatorium, is the presence of peritoneal inflammatory disease such as tuberculous salpingitis. If only one or two air injections are given, however, the danger of disseminating the infection is probably not very great.

The procedure is also contraindicated if the bowel is believed to be adherent to the anterior abdominal wall, and in cases of grave cardiac or respiratory embarrassment or general toxæmia.

GENERAL TECHNIQUE

The most important preliminary procedure is to empty the sigmoid and rectum by an enema and to make sure the bladder is empty.

The actual technique of inducing a pneumoperitoneum is perhaps too well known to warrant a detailed description here. In a child, 300-700 c.c. may be injected and in an adult 700-1,000 c.c. Room air is generally used. A single injection may be adequate if the radiographs are taken immediately, but a second or third injection of the same amount of air at two-day intervals may be necessary to build up sufficient intraperitoneal air. A short, gauge 18 needle with not too sharp a bevel is used, and is inserted under local anæsthesia into the peritoneal cavity at the lateral border of the left rectus abdominis muscle just above the umbilicus.

RADIOGRAPHIC TECHNIQUE

The patient lies prone on the x-ray table with the head of the table tilted down 50 to 60 degrees. This allows the air in the peritoneal cavity to ascend into the pelvis, and so separate the uterus and tubes from the bladder. The x-ray tube is aimed down vertically at the floor. Additional oblique views may be useful. The average exposure is that used for a flat film of the abdomen, i.e., 100 mA. and 70 kV. at 36-inch (90 cm.) distance.

CASE HISTORIES

The following were all patients under treatment for pulmonary tuberculosis at the Toronto Hospital for Tuberculosis, Weston, Ontario. In one instance (Case 4) the pneumoperitoneum was induced specially. The other cases were already receiving pneumoperitoneum therapeutically and agreed to undergo the preparation necessary for this investigation.

CASE 1. (Fig. 1).—L.F., a 28-year-old married white woman with one daughter aged 5. Menstrual periods were normal, lasting seven days and with a cycle of 30 days. Pelvic examination was negative apart from a small cervical erosion. The pelvic radiograph was normal.

CASE 2. (Fig. 2).—R.G., a 20-year-old single white woman. Menstrual history normal. Pelvic examination not done. The pelvic radiograph showed the small uterus of a young nullipara.

CASE 3. (Figs. 3 and 4).—O.G., a 20-year-old single white woman. The menarche occurred at the age of 12. She had six months' amenorrhœa at the onset of her

*From the Toronto Hospital for Tuberculosis, Weston, Ont.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

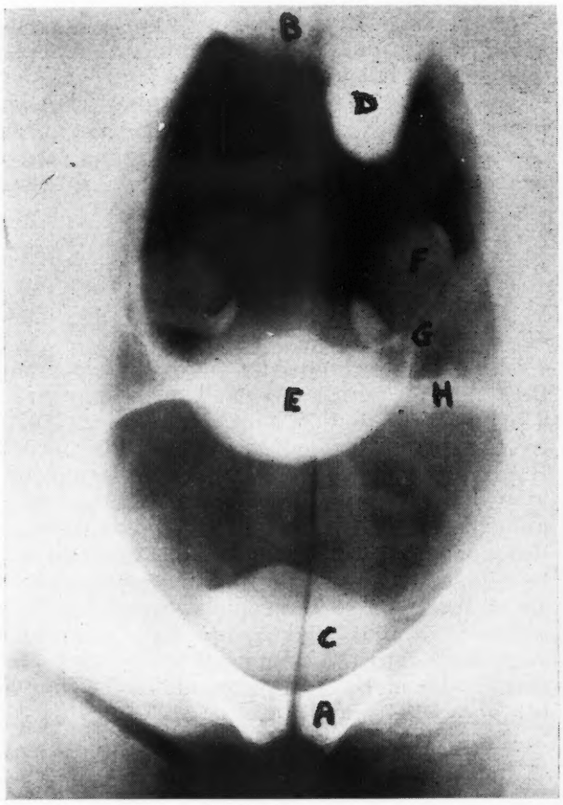


Fig. 1.—L.F., normal parous pelvis. A—symphysis pubis. B—promontory of sacrum. C—bladder. D—rectum. E—uterus. F—left ovary. G—Fallopian tube. H—round ligament.

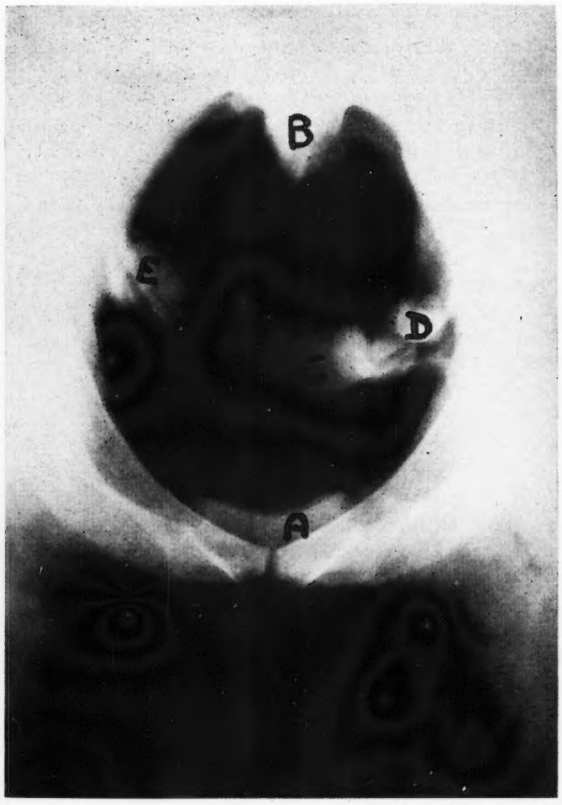
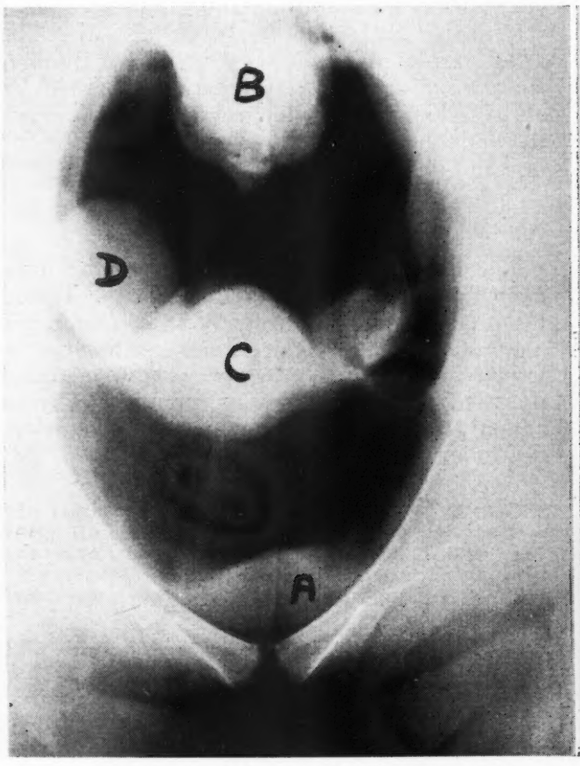


Fig. 2.—R.G., normal pelvis in a young nullipara. A—bladder. B—rectum. C—uterus. D—left ovary. E—right ovary.



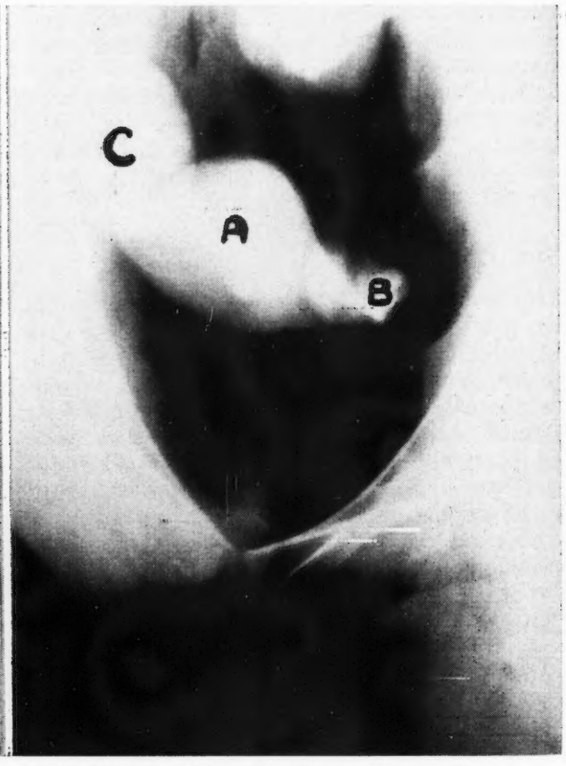


Fig. 3.—O.G., enlargement of the right ovary. A—bladder. B—rectum. C—uterus. D—smooth regular enlargement of the right ovary. Fig. 4.—Enlargement of the right ovary, oblique view. A—uterus. B—left ovary. C—enlarged right ovary.

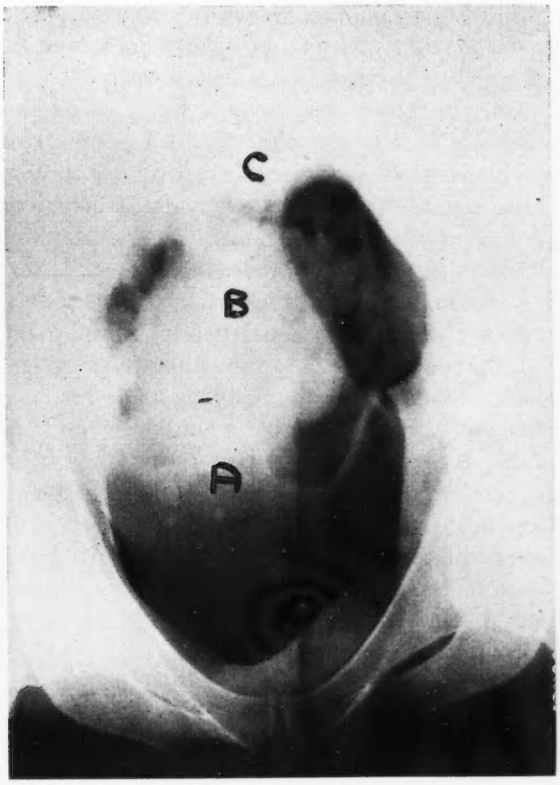


Fig. 5.—E.B., fibroids. A—large fibroid on anterior surface of the uterus. B—uterus displaced backwards. C—rectum.

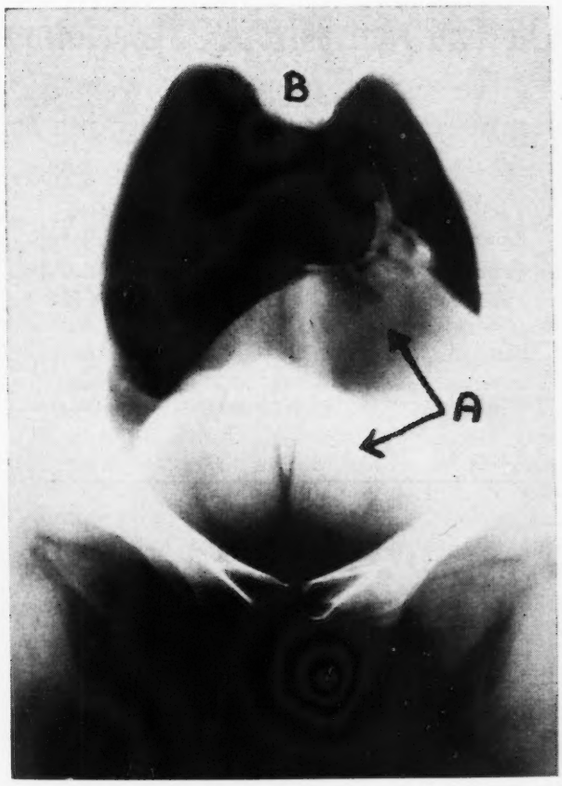


Fig. 6.—Patient inadequately prepared. A—distended bladder. B—promontory with a loop of sigmoid colon distended with gas lying in front of it.

pulmonary tuberculosis a year previously, but her periods were now normal, lasting four days and with a cycle of 28 days. The A.P. and left oblique pelvic radiographs showed a regular, smooth enlargement of the right ovary. She declined, however, to have either a pelvic or even a rectal examination, and in the absence of symptoms the matter was not pursued further.

CASE 4. (Fig. 5).—E.B., a 44-year-old married white woman. She had one daughter aged 24 and there was a miscarriage 20 years ago. Menstrual periods were regular but for the past six years had lasted for five to seven days and had been heavy with the passage of clots. Pelvic examination showed a hard nodular mass in the pelvis probably attached to the anterior surface of the body of the uterus and pushing the uterus back. The diagnosis was fibroids. The pelvic radiograph showed a large round mass attached to or growing from the uterus. Laparotomy by Dr. Nelson Henderson at the Toronto General Hospital showed a large uterine fibroid and hysterectomy was carried out.

CASE 5. (Fig. 6).—This radiograph shows the result of inadequate preparation; the bladder is distended and there is gas in the sigmoid and rectum. The patient was a 28-year-old nullipara with prolapse for which a vaginal hysterectomy was later carried out.

SUMMARY

This paper describes a simple technique for outlining the pelvic organs in the female. Any age from infancy up may be suitable and it is perhaps most valuable—when required—in children and the unmarried, where pelvic examination is difficult. The chief contraindication is the presence of peritoneal inflammatory disease such as a tuberculous salpingitis.

We wish to express our indebtedness to Dr. C. A. Wicks, superintendent, Toronto Hospital for Tuberculosis, Weston, Ontario, Dr. Nelson Henderson, consultant in gynæcology and obstetrics, and Dr. W. J. Cryderman, radiologist. Our thanks are due also to Mr. Harold Layne for the photographs.

REFERENCES

1. SANTE, LeR.: Manual of roentgenological technique, Edwards Brothers Inc., Ann Arbor, Mich., 1949, p. 227.
2. KUNSTADTER, R. H., GUTERMAN, H. S. AND TULSKY, A.: *A. M. A. Am. J. Dis. Child.*, **86**: 275, 1953.
3. KUNSTADTER, R. H. AND TULSKY, A.: *Am. J. Obst. & Gynec.*, **68**: 819, 1954.

MEGACŒSOPHAGUS

Cardiospasm, achalasia and megacœsophagus are used as interchangeable terms for a disease characterized by dysphagia and dilatation of the œsophagus. But megacœsophagus is characterized by tonic contraction of the terminal œsophagus with dilatation proximally. Treatment should be by linear œsophagomyotomy; relief thus obtained is quite satisfactory as shown by 20 cases. The operation is done through a transthoracic approach and in this way differs from the Heller operation.—D. B. Effler and J. W. Rogers: *A.M.A. Arch. Surg.*, 71: 551, 1955.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

The Canadian Medical Association Journal

published twice a month by

THE CANADIAN MEDICAL ASSOCIATION

Editor: S. S. B. GILDER, T.D., M.B., B.S., B.Sc.
Managing Editor: T. C. ROUTLEY, M.D., F.R.C.P.[C.]
Consultant Editor: H. E. MACDERMOT, M.D., F.R.C.P.[C.]
Editorial Offices: 150 ST. GEORGE ST., TORONTO

(Information regarding contributions and advertising will be found on the second page following the reading material.)

WHAT SEX?

Where congenital errors of sex development give rise to difficulty in assigning a sex to an infant, the traditional medical and surgical view has been that the gonadal sex as revealed by surgical exploration is the real one, though the genital morphology has usually been taken as the practical index. In his article on page 419, Dr. Murray Barr discusses another index of sex, chromosomal sex, while pointing out that the chromosomes do not necessarily indicate the more appropriate clinical and social sex for the patient.

A series of studies from Johns Hopkins Hospital have recently shown clearly the dangers of relying on traditional methods of assigning a sex to persons afflicted with some degree of hermaphroditism, and also the risks associated with attempts at changing the sex in such cases.

The series, to which Dr. Barr made a contribution as a cytologist, began with a study of 19 patients suffering from the condition formerly known as ovarian agenesis or Turner's syndrome, but better termed gonadal dysgenesis.[1] These patients have infantile female genitalia but rudimentary gonads; they have a normal female pattern of adrenal cortical secretion, are of stunted growth and may have other developmental anomalies. The curious thing revealed by cytological study was that 11 out of 13 aged between 9 and 27 and all reared as girls, had a male chromosomal pattern although they were most obviously feminine; those who had passed the age of puberty had received œstrogen substitution therapy, and at least 10 out of the 11 had a healthy personality. The authors are emphatic in stating that such patients should not even be informed of their chromosomal status.

Extending their studies to a series of 65 ambiguously sexed persons, the Johns Hopkins psychiatrists[2] showed that it is extremely unwise to use a single criterion like gonadal structure or chromosomal pattern in assigning a hermaphrodite to one sex or the other. In assigning a sex, they recommend that the primary criterion in infancy should be external genital morphology and the possibility of appropriate surgical reconstruction, due allowance being made for later hormone therapy. In older children and in adults, the paramount consideration should be the gender role established already. By this term, they mean all the "things that a person says or does to disclose himself or herself as having the status of boy or man, girl or woman, respectively". Parents and physician should make up their minds about the infant's sex early (within the first few weeks) and stick to their decision, so that a gender role is clearly defined and consistently maintained from the beginning. Gender role is well established by the age of 2½ years, and it is then too late to make a change with impunity. Parents must be told that their infant is not just half a girl and half a boy, but either a girl or a boy with incomplete differentiated sex organs.

The significance of sex assignment and rearing is shown in another study[3] in which it was found that gender role and orientation was congruous with such rearing in 72 out of 76 patients, whereas contradiction was common between chromosomal sex, gonadal sex, hormonal sex, and external genital appearance on the one hand and sex of assignment and rearing on the other. It is suggested that sexual behaviour and orientation as male or female do not have an innate, instinctive basis, but that gender role is established in the course of growing up.

The latest paper[4] in the series confirms these findings in 94 hermaphrodites and shows also that, contrary to what might be expected, the vast majority of these persons are psychologically healthy. Patients whose sex of rearing was contradicted by chromosomal or gonadal sex were not necessarily psychologically unhealthy, but reassigning the sex of rearing after the first months of life was likely to cause psychological trouble and this trouble was likely to be greater the longer reassignment was delayed.

These studies offer much food for thought, and it is to be hoped that they will be still further developed. If the chromosomes, the gonadal structure, and the hormonal pattern are all utterly unreliable in predicting orientation as male or female, what is left? It almost looks as if, in the hermaphrodite at least, there's nothing either male or female but thinking makes it so.

1. HAMPSON, J. L., HAMPSON, J. G. AND MONEY, J.: *Bull. Johns Hopkins Hosp.*, **97**: 207, 1955.
2. *Idem*: *Ibid.*, **97**: 284, 1955.
3. *Idem*: *Ibid.*, **97**: 301, 1955.
4. *Idem*: *Ibid.*, **98**: 43, 1956.

Editorial Comments

HOW SHOULD PEPTIC ULCERS BE TREATED?

It might come as a shock to some that this question should be asked. But it is a question which should be answered, for treatment of both gastric and duodenal ulcers is by no means satisfactory.

As pointed out by Doll,[1] at one time starvation was recommended, for instance by Lente in 1876 and Riegel in 1903. The next best-known regimen was the original Sippy diet, first described in 1915. In its original form it was almost certainly deficient in vitamin C and probably also in the B vitamins. The Sippy diet was modified and in 1934 the more liberal Meulengracht bland diet was introduced, but currently patients are still provided with a long list of prohibited foodstuffs.

During all this time there were no controlled experiments on the various diets, their use being determined by tradition and theoretical grounds that "bland" foods cause less secretion than other foods and do not irritate the ulcer physically, and partly because patients given a restricted diet tend to lose their pain. But as these workers note, the bouts of pain associated with an ulcer are nearly always self-limiting and it is widely held that the duration of the bouts can be influenced by psychological means. Both Nicol[4] and Lawrence,[3] comparing ulcer patients on a full diet with those on a standard ulcer regimen, found no advantage in the ulcer regimen.

Doll,[1] as part of a long-term study of gastric ulcers, describes the results of trials on 64 inpatients with gastric ulcers, 80 outpatients with gastric ulcers and 50 outpatients with duodenal ulcers.

For inpatients the contrasted methods of treatment were:

1. A standard ulcer diet, and an almost normal ward diet. The diets did not contain fried foods.

2. Continuous intragastric milk drip, and no drip.

3. Advice to smokers to stop smoking, and allowing smoking.

The results showed a slight (but statistically insignificant) advantage to the patients on the almost normal diet in regard to healing of the ulcer, shown radiographically. They also gained more weight. But those on the standard ulcer diet suffered appreciably less pain than those on the normal diet. However, symptoms of discomfort decreased as patients developed confidence in the "almost normal" diet, suggesting a psychological origin for the pain.

The outpatients were advised to continue for a year on the standard ulcer diet on which they had been treated, or they were advised to revert to a wholly normal diet. At the end of the year the proportion free from pain, and in whom the ulcer had radiographically healed, was the same in both groups.

In a more detailed study of intragastric milk drip treatment for gastric ulcer in 164 inpatients, the impression was gained that pain was relieved more rapidly (Doll *et al.*[2]) with milk drip than in patients on a modified Meulengracht diet. An alkalinized milk drip (40-140 g. sodium bicarbonate daily) is considered to be a useful adjuvant to standard treatment in patients whose pain persists with rest in bed.

From other work in London (Dawson[5]) it is considered that intragastric milk treatment is of no use in preventing the recurrence of massive hæmorrhage in upper gastrointestinal bleeding.

From this interesting work it would appear that peptic ulcer patients do well on normal diets (possibly with the omission of fried foods), and that an intragastric milk drip is indicated for patients who have persistent pain even with rest in bed. No good object is served by keeping ulcer patients for years on bland diets.

As far as smoking is concerned, an insufficient number of patients has as yet been advised to stop, so that results are not yet available from the present investigation.

There is a great need for experimental work of this type. The time has arrived when clinicians might now and again get away from their preoccupation with serum gamma globulin and beta-lipoproteins, 17-ketosteroids and electrocortin in human urine, and return to the patient and try to reassess our current treatments of common ailments like peptic ulcers and chronic bronchitis, dysmenorrhœa and menorrhagia, backache and common or garden fatigue.

REFERENCES

1. DOLL, R., FRIEDLANDER, P. AND PYGOTT, F.: *Lancet*, **1**: 4, 1956.
2. DOLL, R., PRICE, A. V., PYGOTT, F. AND SANDERSON, P. H.: *Lancet*, **1**: 70, 1956.
3. LAWRENCE, J. S.: *Lancet*, **1**: 482, 1952.
4. NICOL, B. M.: *Lancet*, **1**: 466, 1942.
5. DAWSON, A. M.: *Lancet*, **1**: 73, 1956.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

A NATIONAL INSPECTORATE FOR MENTAL HOSPITALS IN CANADA

A reading of Dr. Kathleen Jones's notable book "Lunacy, Law, and Conscience 1744-1845"[1] raises the question of an inspectorate for mental hospitals in Canada. Isn't it time, in words of Lord Shaftesbury, one of the pioneers of Lunacy Reform, that "the most helpless, if not the most afflicted portion of the human race" should be adequately protected in Canada? Dr. Jones covers the years from 1744-1845 in England, a period during which the British people were slowly driven by three generations of reformers to recognize their responsibilities.

"Lunacy, Law and Conscience" is not a specially enticing title, but she has made a subject which could have easily become dull, hugely interesting. This is a tribute to her scholarship and style, but unhappily there is another reason why this book holds the reader. There is an appalling sense of déjà-vu about it. The struggles for reform almost 200 years ago strike one with dismal familiarity. There is a poignancy about the crisp, yet slightly stilted early 19th century English which makes the story wonderfully fresh and tragic. Again and again one reads about the nakedness of patients, the filthy conditions in which they lived, the bad ventilation, the gross overcrowding, the belief in routine procedures, the lack of skilled attention. And, against this, the belief of lay and medical men of the day that humane methods, already in use, could be widely spread and would result in wellbeing and, in the end, economy.

The administrators of mental hospitals in the 1950's—one hundred and ten years after Dr. Jones's survey ends—will find dozens of paragraphs which echo the present. In the Commissioner's Report for 1844 is this paragraph—had its implications been understood and acted upon, very much better hospitals would have been built: "While we have no wish to advocate the erection of unsightly buildings we think that no unnecessary costs should be incurred for architectural decorations, especially as these hospitals are erected for persons who, when they are well, are accustomed to dwell in cottages." Had that warning been needed, how many monumental monsters would we have been spared in this last century? Yet we are still putting up huge edifices instead of mental hospitals composed of small, inconspicuous homelike buildings suitable for those who are accustomed to dwell in cottages. Can we never learn?

What would these great reformers think of us? I believe they would be sorely disappointed. They would feel that we have slowed down in many directions and lost ground in some. Why, after that flying start in the 1840's when Ashley Cooper, as Lord Shaftesbury was then called, was forcing through the Lunacy Acts and Conolly was introducing non-restraint in Hanwell, did mental hospitals lose so much ground that a century later many of the old abuses had returned? In 1840 Conolly was preparing to turn his hospital into a place where doctors, medical students and nursing staff would all receive appropriate training. Yet, more than 100 years later, there are far too few psychiatrists in Canada, and psychiatric nursing is still struggling for recognition and assistance. How could it be that in the 1850's the huge scope of psychiatry, which is certainly as great as that of either medicine or surgery, was fully understood, yet so little was it consolidated in the following century that psychiatrists are now inclined to apologize for themselves as members of a new specialty, though in fact belonging to one of the oldest established branches of medicine?

We do not know for certain, and research into this disaster is greatly needed. It may have arisen from a single misfortune. Psychiatry at its best in the early 19th century practised what it called "the moral treatment of the insane", which was clearly the forerunner of modern social and interpersonal psychiatry. At that time, this was an empirical procedure with an ethical rather than a scientific foundation. It was never taught as an essential medical skill. When the great technologies of the second half of the 19th century—physiology, pharmacology, pathology, bacteriology, and medical biochemistry—began to expand and provide the skeleton on which modern medicine and surgery is built, moral treatment sounded slightly ridiculous and redolent of Quakerism. It wilted and, with its going, the squalid brutalities of the 18th century began to reappear and were soon supplemented by the systematized hygienic inhumanity of the 20th century.

Once more a wave of public interest in psychiatry, mental illness and mental hospitals is rising. Once more there are those who would avoid doing too much for the care of "the most helpless if not the most afflicted of the human race". How can we prevent another disastrous recession in both interest and achievement? We must have a proper and acknowledged fund of information regarding the running of mental hospitals and we must have standards which are accepted and enforced by public opinion. The only way of ensuring this is by regular inspection of mental hospitals by an outside authority which has the confidence of the public and whose aim is to safeguard the mentally ill. In 1840, Samuel Tuke, one of the great family of Quakers who founded the Retreat at York, wrote, "We shall not secure efficient visitation until we have appointed a number of competent persons to visit, under authority of the government, all the places of whatever description, in which the insane are confined."

The question is—how should such a body be set up? The initial efforts must come from those who are most concerned for the wellbeing of the

mentally ill in Canada, and this is surely the special responsibility of the Canadian Mental Health Association. There are many tricky problems which confront the advocates of a scheme of inspection in Canada, so that the first steps must consist of convening meetings of those professional bodies who should be most interested. The Canadian Medical Association, the Canadian Psychiatric Association, the Canadian Bar Association, the Canadian Psychological Association, the Canadian Psychiatric Nurses Association, and the Canadian Nurses Association, are obvious choices. If an agreed policy could be reached by these associations, it is likely that provincial governments, and later the federal government, would listen sympathetically to any recommendations.

What is required to avoid unsatisfactory care and even exploitation of the mentally ill is an inspectorate which visits all hospitals at least once yearly and whose report is available to the public. Unless such an inspectorate exists above the ebb and flow of political life, the mentally ill citizen will never recover the consistent, determined and above all persistent public interest which he so desperately needs.

There are grave difficulties to be encountered by those who would establish such a body. One suggestion is to use the Central Inspection Board of the American Psychiatric Association. The difficulty here is twofold; first, it seems very unlikely that this inspection board could carry out an annual inspection of this sort without greatly reducing its efforts in the U.S., and second, one wonders whether Canada would be wise to place the wellbeing of a very large number of its sick citizens in the hands of doctors from another country, however expert and skilled.

In my view, the professional associations which I have listed above could explore ways and means of setting up an inspectorate in a way that would be acceptable to both provincial and federal governments. We sometimes forget that in the 1840's the communications were much slower than in Canada in the 1950's. Transport was mostly by coach with a maximum speed of about 10 m.p.h. It was not until the 1850's that railway building became widespread. Local feeling was often strong and the idea of a central inspectorate was only welcomed because the reformers were able to show a great need.

On June 6, 1845, the bill which was the outward and usable sign of a century's effort was brought forward to Parliament in Westminster. In his opening speech, Lord Shaftesbury said, "It is remarkable and very humiliating, the long and tedious process by which we have arrived at the sound practice of the treatment of the insane, which now appears to be the suggestion of common sense and ordinary humanity." Would anyone dare to say that these words are not as appropriate now as when they were written 110 years ago? Surely the medical profession should show itself as concerned for the mentally sick in Canada as was the aristocratic legislator of a far country in an age which we are now inclined to view with patronizing superiority?

HUMPHRY OSMOND

REFERENCE

1. JONES, KATHLEEN: Lunacy, Law and Conscience, 1744-1845. Routledge and Kegan Paul Limited, London, England.

A TRIBUTE TO DR. W. W. FRANCIS

The Osler Society of McGill has recently (February 1956) published a small but distinctly unusual volume.* Taking advantage of its thirty-fifth anniversary, and wishing particularly to honour Dr. W. W. Francis, librarian of the Osler Library, who more than any other man has helped to sustain the Society, it has brought together a number of tributes to Dr. Francis from some of his many friends and those associated with him in the life of the Library.

Such a collection is perhaps one of the pleasantest and most gratifying ways of showing esteem. It is true that the Library naturally recalls Osler himself, but no one other than Dr. Francis could have interpreted him through his books with more understanding. He has made the Library not simply a monument to Sir William; in fact, he has more than once corrected those who have spoken of it as the Osler *Memorial* Library. Rather has he shown what a living force it can be, and how valuable a part it plays in the undergraduate life and also in wider fields; and that this influence can be strengthened and extended. In his many years of librarianship a Francis tradition has grown up in medical literature, quite definite, quite distinctive.

This volume of tributes appropriately crystallizes that tradition. Their general tone fortunately is light, reflecting the geniality of Dr. Francis himself. But under his gaiety there has always been the seriousness and steady purpose of the true scholar which have given such high quality to his work.

Fortunate indeed is the man who has the scholar's mind, and more fortunate still he that has that

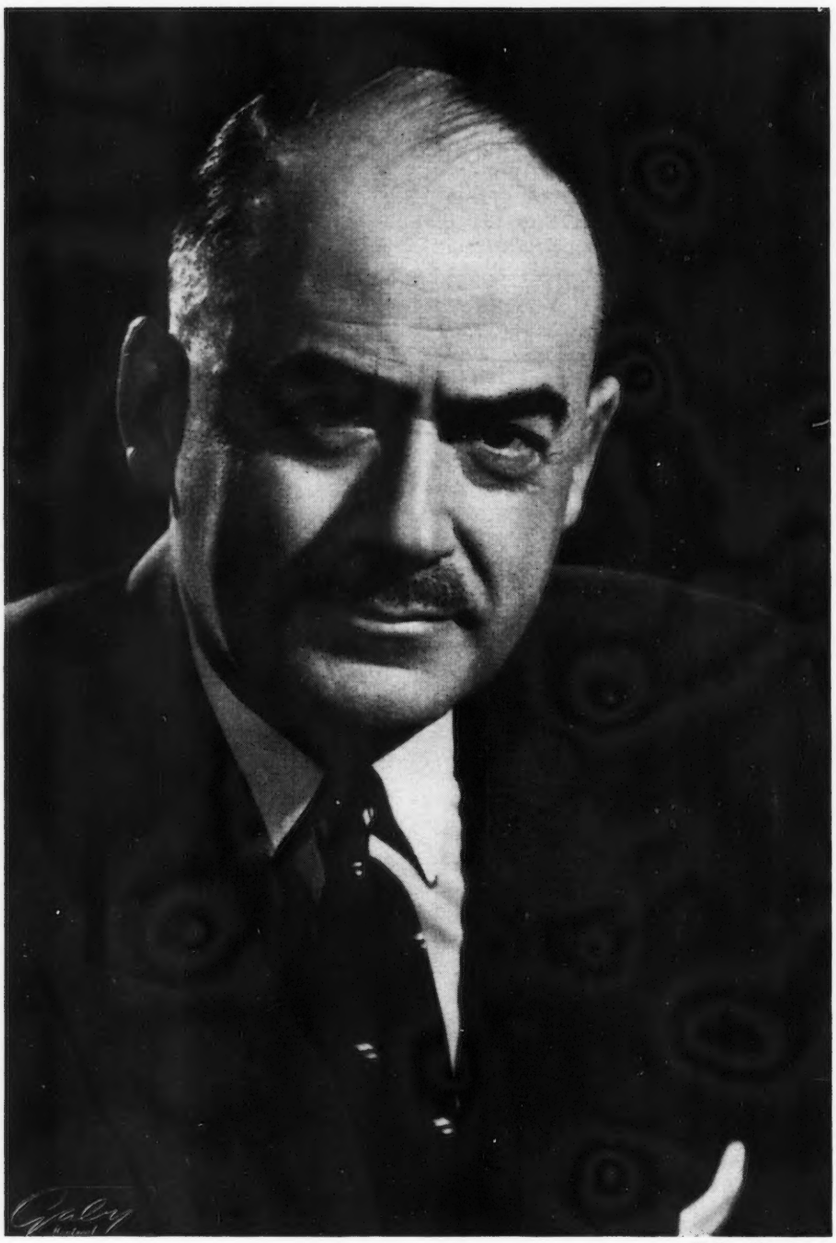
delight in simple things
And mirth that has no bitter springs

which has always been so pleasantly characteristic of Dr. Francis.

The book itself is most attractively produced, with an excellent portrait in charcoal, and other illustrations. Along with many personal reminiscences it contains a history of the Osler Society, and much interesting detail about the Library. The edition is a limited one, and bids fair to become a collector's item. H.E.M.

---

*W. W. *Francis: Tributes from his Friends.* Published by the Osler Society of McGill University, 3640 University St., Montreal, 1956. $5.00.



Gaby, Montreal

RENAUD LEMIEUX, M.D.
President-Elect
Canadian Medical Association

A Message to Members from the President-Elect

IT IS A GREAT PLEASURE for me to extend a most cordial welcome to the members of the Canadian Medical Association to our old and historical city of Quebec, which has been chosen as the site of the 1956 Annual Meeting. I can assure you that everything is being done to make our guests enjoy their stay with us. You will find much to see and admire in this city of charm and narrow streets, rich in history.

The Central Organization Committee has been at work for several months, arranging an interesting and informative scientific programme. The details are now near completion; conferences and papers in general will be heard both in English and in French. Because this year's meeting will be truly bilingual, simultaneous translation, with adaptable earphones, will be provided. The importance of the different discussions and sessions will thus be underlined; the presence of the translation service will permit all members of the Association to follow the programme at all times.

There is also a historical character to the coming meeting. The Canadian Medical Association was founded in Quebec City in 1867, but no C.M.A. convention has been held here in over thirty years, so we plan to make this a memorable occasion.

The committees are now at work on an imposing and diverting social programme, worthy of the Canadian Medical Association's finest traditions. His Excellency the Governor-General of Canada will honour the Association with his presence and will receive members at tea time at his official residence, inside the walled and ancient Citadel.

The Citadel overlooks the historical battlefields and crowns the promontory of Cape Diamond. It houses relics of the French Régime of 1693 and of an old powder magazine of 1750, which is now transformed into a museum. Browsing through this Gibraltar of America is well worth while, but it is only one of the highlights of the coming meeting.

We are looking forward to greeting each member, and we trust that the Canadian Medical Association will become a friend of "le vieux Québec".

RENAUD LEMIEUX,
President-Elect.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

PRELIMINARY PROGRAMME

EIGHTY-NINTH ANNUAL MEETING

Canadian Medical Association

QUEBEC, JUNE 11-15, 1956

Arrangements for the 89th Annual Meeting are well advanced and a very attractive programme of business, scientific and social activities has been prepared. In addition to the meeting of The Canadian Medical Association, a number of affiliated specialist societies have arranged to hold their annual meetings in close relationship. Further details will be available at a later date.

The General Council of The Canadian Medical Association will meet on Monday and Tuesday, June 11 and 12, in the Ballroom of the Château Frontenac.

The scientific programme will be presented on Wednesday, Thursday and Friday, June 13, 14 and 15, all sessions being held in the School of Commerce, Laval University. The preliminary scientific programme follows:

Wednesday, June 13

ROUND TABLE CONFERENCES

9.00 a.m. - 10.15 a.m.

1. **External and Internal Fixation of Fractures**
   DR. J. ANTONIO SAMSON, Montreal (*Chairman*)
2. **Obstetrical Hæmorrhage**
   DR. LÉON GÉRIN-LAJOIE, Montreal (*Chairman*)
3. **Anticoagulant Therapy**
   DR. IRWIN M. HILLIARD, Saskatoon (*Chairman*)
4. **The Medical Aspects of Traffic Accidents**
   DR. HAROLD ELLIOTT, Montreal (*Chairman*)

GENERAL SESSION

10.30 a.m. - 12.15 p.m.

The President's Valedictory Address
DR. T. C. ROUTLEY, Toronto

As You Look—So Shall They See
DR. P. ROBB MCDONALD, Philadelphia

The Osler Oration—Actual Orientation of Research on the Etiology of Pulmonary Tumours
DR. ANTOINE LACASSAGNE, Paris

SESSION A

2.00 p.m. - 5.00 p.m.

The Management of Arterial Hypertension
DR. JACQUES GENEST, Montreal

Heart Failure in Infants and Children
DR. JOHN KEITH, Toronto

Cardiac Metastases in Bronchogenic Carcinoma
DR. GUY DROUIN, Quebec

Topic to be announced
DR. FRANKLIN BERKMAN, Ottawa

The Operative Treatment of Coronary Disease
DR. W. H. PHILIP HILL, Montreal

SESSION B

2.00 p.m. - 5.00 p.m.

Radiological Diagnosis of Lesions of the Œsophagus
DR. ALBERT JUTRAS, Montreal

Benign Lesions of the Œsophagus
DR. JACQUES TURCOT, Quebec

Hiatus Hernia and Œsophagitis
DR. VICTOR O. MADER, Halifax

Œsophageal Varices
DR. S. JAMESON MARTIN, Montreal

Surgical Treatment of Carcinoma of the Œsophagus
DR. ROSS ROBERTSON, Vancouver

Œsophageal Diverticula
DR. R. A. MUSTARD, Toronto

SECTION OF OBSTETRICS AND GYNÆCOLOGY

2.00 p.m. - 5.00 p.m.

A Plan of Management of Abruptio Placentæ
DR. GORDON W. PRUETER, London

Some Problems in Pædiatric Gynæcology
DR. FRED E. BRYANS, Vancouver

Advances in the Treatment of Pre-Eclamptic Toxæmia
DR. M. N. N. CARBOTTE, Quebec

The Management of Anoxia in the Newborn
DR. JOHN MANN, Toronto

Thursday, June 14

ROUND TABLE CONFERENCES

9.00 a.m. - 10.15 a.m.

1. **Pædiatric Dermatology**
   DR. EMILE GAUMOND, Quebec (*Chairman*)
2. **Indications for the Surgical Treatment of Heart Disease**
   DR. J. H. PALMER, Montreal (*Chairman*)
   DR. PAUL DAVID, Montreal
   DR. W. G. BIGELOW, Toronto
   DR. R. S. FRASER, Edmonton
   DR. ARNOLD JOHNSON, Montreal
3. **Reactions to the Administration of Antitetanic Serum**
   DR. OWEN V. GRAY, Toronto (*Chairman*)
4. **The Treatment of Soft Tissue Wounds**
   DR. GEORGES CLOUTIER, Montreal *(Chairman)*

GENERAL SESSION

10.30 a.m. - 12.15 p.m.

The Tisdall Oration—Unconsidered Mechanisms Involved in Maintaining the Stability of the Internal Environment
DR. R. A. MCCANCE, Cambridge

Vaccination Against Poliomyelitis—The Current Situation in Canada
DR. A. J. RHODES, Toronto

Problems of Staphylococcic Infections
SIR HOWARD FLOREY, Oxford

SESSION A

2.00 p.m. - 5.00 p.m.

The Treatment of Acute Poisoning
DR. GUY E. JORON, Montreal

Some New Findings Concerning the Prevention of Tuberculosis
DR. HUGH E. BURKE, Montreal

The Diagnosis and Treatment of the Menopause
DR. MARION HILLIARD, Toronto

The Treatment of Thyroid Disease by Radioactive Isotopes
DR. CHARLES H. JAIMET, Hamilton

Les Manifestations Nerveuses des Porphyries
DR. RAYMOND GARCIN, Paris

SESSION B

2.00 p.m. - 5.00 p.m.

Five Hundred Cases of Pulmonary Resection for Tuberculosis
DR. JEAN M. LEMIEUX, Quebec

New Methods in the Revascularization of the Ischæmic Limb
DR. J. C. LUKE, Montreal

The Diabetic Foot
DR. ANGUS D. MCLACHLIN, London

Aortic Aneurysms, With and Without Surgery
DR. W. G. BIGELOW, Toronto

An Evaluation of Surgical Procedures in Peptic Ulcer
DR. WILFRID M. CARON, Quebec

SECTION ON MEDICAL CARE

2.00 p.m. - 4.30 p.m.

A Study of Medical Care under Windsor Medical Services
DR. S. J. AXELROD, Ann Arbor

Universal Hospital Care in Saskatchewan
DR. BURNS ROTH, Regina

The Provision of Hospital and Ambulatory Services in Radiology and Laboratory Medicine
DR. F. W. JACKSON, Ottawa

ARMED FORCES MEDICAL SECTION

2.00 p.m. - 5.00 p.m.

Medical Aspects of Maritime Arctic Operations
SURGEON LIEUTENANT D. J. KIDD, R.C.N., Halifax

Medical Services in Cold Weather Warfare
MAJOR J. E. GILBERT, R.C.A.M.C., Ottawa

Medical Aspects of Military Operations by the R.C.A.F. in a Cold Climate
SQUADRON LEADER L. A. WRIGHT, R.C.A.F., Ottawa

Some Physiological Aspects of Arctic Warfare
DR. J. A. HILDES, D.R.B., Winnipeg

Friday, June 15

ROUND TABLE CONFERENCES

9.00 a.m. - 10.15 a.m.

1. Eye Emergencies
DR. ROLAND VIGER, Montreal (*Chairman*)

2. The Recognition and Management of Psychiatric Emergencies
DR. C. A. MARTIN, Quebec (*Chairman*)

3. Problems of Tonsillectomy
DR. J. C. RATHBUN, London (*Chairman*)
DR. A. W. BAGNALL, Vancouver
DR. H. L. BACAL, Montreal
DR. ROLAND LAVOIE, Quebec

4. Rehabilitation of the Hemiplegic
DR. GUSTAVE GINGRAS, Montreal (*Chairman*)
DR. A. T. JOUSSE, Toronto
DR. ROGER DUFRESNE, Montreal
DR. E. D. WITTKOWER, Montreal
DR. C. E. G. GOULD, Vancouver
DR. CLAUDE BERTRAND, Montreal

GENERAL SESSION

10.30 a.m. - 12.15 p.m.

Ulcerative Colitis
DR. LAWRENCE S. FALLIS, Detroit

Topic to be announced
DR. W. P. SHEPARD, New York

Chronic Bronchitis and Emphysema
DR. RONALD V. CHRISTIE, Montreal

SESSION A

2.00 p.m. - 4.30 p.m.

The Treatment of Nervous Depression
DR. JEAN SAUCIER, Montreal

The Uses and Abuses of Chlorpromazine
DR. LENNOX BELL, Winnipeg

The Restoration of Electrolyte and Fluid Balance in Vomiting and Diarrhœa
DR. MARTIN HOFFMAN, Montreal

Bronchoscopy in Lung Cancer, Its Practical Value in Detection and Management
DR. D. D. MUNRO, Montreal

SESSION B

2.00 p.m. - 4.30 p.m.

The Management of Gastro-Intestinal Hæmorrhage
DR. R. G. CORKRAN, Quebec

The Management of Abdominal Emergencies in the Aged
DR. D. L. C. BINGHAM, Kingston

The Urological Complications of Trauma
DR. J. P. BRAULT, Montreal

Immediate or Operative Cholangiography and Manometric Pressure—100 Cases
DR. J. A. HECTOR BEAUDET, Quebec

SECTION OF RADIOLOGY

2.00 p.m. - 5.00 p.m.

The Radiological Signs of Increase and Decrease in Intracranial Pressure
DR. D. L. MCRAE, Montreal

Remainder of programme to be announced

Canad. M. A. J.
Mar. 15, 1956, vol. 74

HOSPITALS OF QUEBEC CITY

The city of Quebec has in addition to six general hospitals the usual supplement of special institutions. The general hospitals include the Hôtel-Dieu with 380 beds, the Saint-Sacrement Hospital with 330 beds, the Sainte-Foy Hospital with 327 beds (the successor to the historic Marine Hospital and now a D.V.A. establishment), the Enfant-Jésus Hospital with 506 beds and 62 bassinets, Jeffery Hale's Hospital with 120 beds and the Saint François d'Assise with 310 beds. The special hospitals include the Hôpital St-Michel-Archange which began its work in 1845 at the old manor of Beauport and is now the principal as well as the oldest mental hospital of the area; the Roy Rousseau Clinic for less serious neuropsychiatric cases, the Laval Hospital for tuberculosis, the Civic Hospital for infectious diseases, l'Hôpital de la Misericorde (maternity), and the Crèche St-Vincent de Paul. For the benefit of visitors to Quebec who may wish to make contact with some of the hospitals during their visit to the C.M.A. Annual Meeting next June, we add a few notes about several of the above hospitals.

HÔTEL-DIEU DE QUÉBEC

Pride of place among the hospitals of Quebec City must be given to the Hôtel-Dieu, the oldest hospital in North America and a direct link with that most charitable person afterwards canonized as St. Vincent de Paul. At a time when the influence of Monsieur Vincent was leading to much enthusiasm for charitable works among the great ladies of France, an appeal came from Quebec for the establishment of a hospital. Cardinal Richelieu's niece, the Duchess d'Aiguillon, answered the appeal, obtained grants of land for it, and proceeded on the advice of Monsieur Vincent to gather volunteer nuns at Dieppe. They arrived in Quebec on August 1, 1639, and were greeted with a flood of sick persons who first lay in tents, then in a building begun in August 1640 in the suburb of Sillery. In 1644 the Iroquois menace forced them back into the city, where until the English occupation the good sisters continued to receive patients, including those with smallpox, typhus and yellow fever. There was an episode of English occupation until 1784, when the building was given back to the sisters to continue their splendid tradition of "perpetual service to the sick poor".

Until 1893, the Hôtel-Dieu had only 100 beds; it then received an addition of 250 beds paid for not by a millionaire but by the nuns themselves. Government support was poor and the city even tried to get a water tax out of them. "Without the Hôtel-Dieu near at hand," says Boissonault in his *History of the Laval Faculty of Medicine*, "the medical school would never have been able to establish itself on a scientific footing."

A worthy adjunct to the university, the hospital still occupies ground near the site of its earlier buildings, destroyed by fire. It is still in the hands of the nuns of the Rule of St. Augustine, successors through the centuries of those first members of the order who made the perilous journey from Dieppe.

Enfant-Jésus Hospital

HOSPITAL OF THE MOST BLESSED SACRAMENT

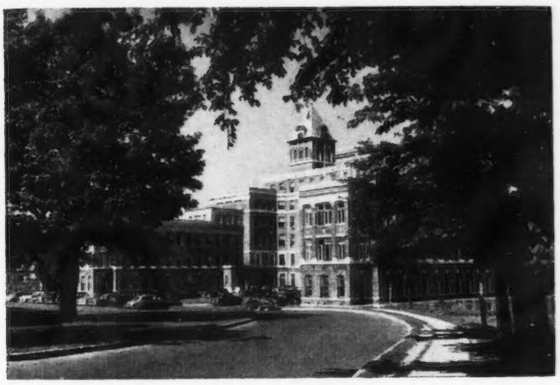
This hospital, known in French as l'Hôpital du Saint-Sacrement, was founded in 1924, at a time when the Faculty of Medicine of Laval, headed by Dr. Arthur Rousseau, was crying out for more hospital beds. The foundation was due to the efforts of clergy, state and university. The ceremony of laying the foundation stone was not without incident, for a violent storm prevented an outdoor ceremony, and the Premier had to carry out his duties in the parish church.

The hospital is now the property of the Grey Nuns, who purchased it 17 years ago. It has a tradition of clinical teaching dating from its beginning and has also possessed a nurses' training school from the start. It has been repeatedly enlarged and now has 300 beds and 35 bassinets, together with a very active outpatient department, and cancer and neuropsychiatric clinics.

Hôtel-Dieu de Québec

ENFANT-JÉSUS HOSPITAL

This hospital owes its inception in 1923 to the enterprise of a woman doctor, Dr. Irma LeVasseur, who was born in Quebec and studied medicine in the United States. She established her first pædiatric clinic in a house on the Grande Allée, and had such great success among the indigent that it became necessary to found a regular hospital under a lay corporation. The hospital was from the first administered by Dominican Nuns, who took it over entirely in



Hospital of the Most Blessed Sacrament

1946. It was affiliated to Laval University in 1947, and now has 506 beds and 62 bassinets, as well as a nursing school. Although the proportion of child patients remains high, this hospital is now a general hospital and one of the great hospitals of the city.

JEFFERY HALE'S HOSPITAL

This general hospital was established by Jeffery Hale, a retired captain of the Royal Navy and a native of the city of Quebec, who left

The new Jeffery Hale's Hospital

sufficient money in his will to purchase the original building and necessary equipment. The hospital was incorporated and opened in 1865 as the first Protestant hospital in the city of Quebec. Recently the hospital has moved to an entirely new modern building.

HOPITAL ST-MICHEL-ARCHANGE

The first mental hospital in the Province of Quebec was founded in 1845 after a long period during which great dissatisfaction had been expressed from time to time at the lack of treatment facilities for mental patients. In 1845 the old manor of Beauport, which was originally built by Robert Giffard, the first resident physician in the colony, was bought and received the first mental patients under the care of Drs. James Douglas, C. J. Frémont and Joseph Morrin. In 1848 a new site was purchased by these doctors, and it is on this land that the Hôpital St-Michel-Archange now stands. The hospital celebrated its centenary in 1949. It has twice suffered extensive destruction by fire—in 1854 and in 1939. The hospital was purchased by the Sisters of Charity of Quebec in 1893 and has been looked after by them ever since. In 1899 the first courses in psychiatry were arranged for the students of Laval. In addition to the main building, the hospital now contains the Roy Rousseau Clinic which was opened in 1926 with 200 beds for treatment of neurological conditions and less severe mental disorders. There is also the La Jemmerais School for treatment of the mentally retarded, founded in 1928. The Sanatorium Mastai for private patients was first organized in 1900 and the Dufrost Pavilion for treatment of senile cases was opened in 1931. The present main modern hospital building dates from 1941, and improvements as regards physical facilities, training, research and ancillary services have continued and are continuing right up to the present day.

REDUCED RAILWAY FARES TO QUEBEC

The Canadian Passenger Association has authorized reduced railway fares for members of the Association and their families attending the 89th Annual Meeting in Quebec, June 11-15, 1956.

Authorized dates for the start of the going journey are as follows:

From stations on Western Lines—all points west of Fort William and Armstrong, Ontario—May 30 to June 12 inclusive, 1956.

From stations on Eastern Lines—Fort William and Armstrong, Ontario, and all points east thereof, except Newfoundland—June 1 to 14 inclusive, 1956.

From stations in Newfoundland—May 30 to June 12 inclusive, 1956.

Round-trip tickets will be sold at reduced rates to persons attending the Annual Meeting, upon presentation of an Identification Certificate. These certificates may be obtained on request to the General Secretary, Canadian Medical Association, 150 St. George Street, Toronto.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

HOUSING APPLICATION FORM

89th Annual Meeting, C.M.A. - Quebec, June 11 - 15, 1956

DR. R. GINGRAS,
CHAIRMAN, COMMITTEE ON HOUSING, C.M.A.,
LAVAL MEDICAL SCHOOL,
QUEBEC CITY, QUEBEC.

I am planning to attend the Annual Meeting of the Canadian Medical Association in Quebec City, June 11 to 15, 1956.

Will you please reserve the following:

_____Double room with bath or shower (double bed).

_____Double room with bath or shower (twin beds).

_____Room for_____persons (private bath, or shower).

_____Motel unit for_____persons (bath or shower).

In view of the large attendance expected, the hotels have no single rooms available. It might be to your advantage to share a room with another member. Please mention below the name of the party with whom you would like to share your accommodation, otherwise assignment will be made by the Housing Committee.

Name_____

Names of persons who will occupy the accommodation requested above:

NAMES (Dr. and Mrs.):_____

ADDRESS:_____

I (we) expect to arrive in Quebec on_____June the_____

_____in the afternoon (before 6.00 p.m.) _____in the evening (after 6.00 p.m.)

Travelling by:_____ Automobile;_____ Train;_____ Air;_____ Bus.

My choice of accommodation is listed below. (Check in order of preference 1, 2 and 3.)

HOTELS:

_____	CHATEAU FRONTENAC	($12.00 to $20.00 for two persons)
_____	CLARENDON HOTEL	($11.00 to $12.00 " ")
_____	HOTEL ST. LOUIS	($8.00 " ")
_____	HOTEL VICTORIA	($10.00 to $12.00 " ")
_____	CHATEAU LAURIER	($8.50 to $10.00 " ")

MOTELS:

_____	AUBERGE DU BOULEVARD LAURIER	($4.00 to $5.00 per person)
_____	MOTEL DU PONT	($4.00 to $5.00 ")
_____	QUEBEC MOTOR COURT	($4.00 to $5.00 ")
_____	L'HABITATION	($5.00 ")
_____	AUBERGE DES 4 CHEMINS	($5.00 to $6.00 ")
_____	MOTEL DES LAURENTIDES	($6.00 ")
_____	MOTEL HELEN'S	($3.00 ")
_____	A B MOTEL	($3.00 ")

TOURIST HOMES:

Near Château Frontenac.
First-class rooms with or without bath ($3.00 to $10.00 per person).

FORMULE DE RESERVATIONS

89ème Réunion annuelle du A.M.C. - Québec, du 11 au 15 juin 1956

DR. R. GINGRAS,
PRÉSIDENT,
COMITÉ DES RÉSERVATIONS, A.M.C.,
UNIVERSITÉ LAVAL DE QUÉBEC,
FACULTÉ DE MÉDECINE,
QUÉBEC, P.Q.

Je me propose d'assister à la 89ème réunion annuelle du A.M.C. qui aura lieu à Québec du 11 au 15 juin 1956.

Prière de bien vouloir faire les réservations suivantes:

----------Chambre avec bain, ou douche (lit double).

----------Chambre pour deux personnes, avec bain ou douche (lits-jumeaux).

----------Chambre pour----------personnes (bain ou douche).

----------Cabines pour----------personnes (bain ou douche).

Vu le nombre imposant d'invités qui participeront à ces assises, les hôteliers nous prient de noter qu'ils ne pourront nous offrir des chambres simples. Sans doute trouverez-vous avantage à partager une chambre avec un confrère. Si tel est votre désir, vous voudrez bien mentionner ci-dessous le nom de la personne avec laquelle vous voulez faire cet arrangement. Si aucun nom n'est indiqué, le Comité de Réservations procedera alors lui-meme à la répartition des chambres.

Nom----------

Noms des personnes occupant les chambres mentionnées ci-haut:

NOMS (Dr et Mme)----------

ADRESSE----------

J'arriverai à Québec----------le---------- juin----------

vers----------h. de l'après-midi (avant 6.00 p.m.) vers----------h. du soir (après 6.00 p.m.)

Moyen de locomotion: Automobile----------Train----------Avion----------Autobus----------

Mon choix d'hôtel est indiqué ci-dessous dans l'ordre de préférence:

HOTELS:

----------	CHATEAU FRONTENAC	($12.00 à $20.00 pour deux personnes)
----------	HOTEL CLARENDON	($11.00 à $12.00 " " ")
----------	HOTEL ST. LOUIS	($ 8.00 " " ")
----------	HOTEL VICTORIA	($10.00 à $12.00 " " ")
----------	CHATEAU LAURIER	($ 8.50 à $10.00 " " ")

MOTELS:

----------	AUBERGE DU BOULEVARD LAURIER	($4.00 à $5.00 par personne)
----------	MOTEL DU PONT	($4.00 à $5.00 ")
----------	QUEBEC MOTOR COURT	($4.00 à $5.00 ")
----------	L'HABITATION	($5.00 ")
----------	AUBERGE DES QUATRE CHEMINS	($5.00 à $6.00 ")
----------	MOTEL DES LAURENTIDES	($6.00 ")
----------	MOTEL HELEN'S	($3.00 ")
----------	A B MOTEL	($3.00 ")

MAISON TOURISTE:

Près du Chateau Frontenac.
Chambre première-classe avec ou sans salle de bain ($3.00 à $10.00 par personne).

Canad. M. A. J.
Mar. 15, 1956, vol. 74

PUBLIC RELATIONS FORUM

Conducted by L. W. HOLMES,
Assistant Secretary, C.M.A.

XIII. THE HEALTH FORUM

PERHAPS no other health education project has received more acclaim, been more widely used, or yielded greater public relations returns than the health forum. In several cities in Canada, in many more in the United States, medical societies have reaped rich profits from the forum, and, at the same time, have contributed much in public service.

What is the health forum?

The health forum—an extension of the society's speakers' bureau—is an open meeting designed to bring current health information to the public in easy-to-understand language. Material on common health problems is presented to the general public by an individual doctor, or by a panel of physicians.

There are several ways in which health forums may be sponsored. The society can "go it alone", handling all details – programme, publicity, space, equipment, cost, etc. More satisfactory, on many counts, is co-operative sponsorship. In most cases of co-sponsorship, responsibility for the health forum is shared by the medical society and a local newspaper. The advantage of such joint sponsorship will be obvious: publicity is assured, and costs are frequently assumed by the newspaper. Moreover, this co-operative sponsorship does much to foster good doctor-press relationships.

Of course, all of the advantages of the speakers' bureau as a PR medium apply as well to the health forum.

When the medical society has studied and approved the health forum as one of its public relations projects, it must then sell the idea to a co-sponsor (if it contemplates co-operative sponsorship). Experience indicates that convincing the local newspaper that it should participate in the health forum is not difficult. The newspaper desires to contribute public service to its community, to stimulate readership in medical news, and, like the medical society, to gain PR profit from the health forum.

There are many subjects which the medical society might consider in planning the health forum. Cancer, heart disease, diabetes, old age are examples. The subject should be one certain to arouse audience interest, and one on which participants may offer helpful and encouraging advice. It is possible to sample potential audience interest by having coupons placed in the newspaper on which readers may request discussion of certain health topics.

There are several possible forum formats. All of them use the moderator, almost always a physician. The same doctor may moderate all meetings, or a different moderator may be chosen for each public session.

The subject may be introduced by an orientation speaker—frequently an out-of-town guest—and then discussed by a panel of physicians. Or the moderator may outline the topic and then turn it over to the panel.

Discussion of the topic should not occupy all of the forum time. The last part of the programme should be devoted to a question-and-answer period during which panelists attempt to deal with problems submitted by patients, by the audience, or by newspaper readers (using special coupons). The questions should be obtained in advance.

The following is a time allotment suggested by one society which used the health forum with success.

Each forum will run 1¾ to 2 hours, from beginning to end. The time pattern will be as follows:

a. Introductory remarks—5 minutes.
b. Moderator's introduction—5 minutes.
c. Orientation speaker—15 to 20 minutes.
d. Panel discussion—45 to 60 minutes.
e. Questions—15 to 30 minutes.

The health forum must be adequately promoted if the public is to be attracted. People are not interested in educating themselves; rather, they wish to be entertained, and other forms of entertainment compete actively for their attention. If a newspaper is co-sponsoring, promotion is simple. Full-page and part-page ads, news stories and pictures will help sell the forum. The use of doctors' pictures in the promotional material is a problem with which the society must come to grips. Most medical societies permit such usage, and, should a society decide to ask its forum participants to allow their pictures to be used, the doctor is guaranteed immunity from justifiable criticism under that section of the Code of Ethics which covers "Communication to the laity on medical subjects."

Radio and television are valuable adjuncts to the health forum. These media take the forum health information to thousands who are unable to attend, or to gain entrance to the hall. Should it be felt that broadcasting the forum will reduce attendance, the meeting may be recorded on tape and presented at a later date.

Indeed, recorded forums provide the basis for a society-sponsored radio series—the next topic for discussion in *Public Relations Forum.*

MEDICAL ASSISTANTS

IN A RECENT ARTICLE in this series, the importance of the medical assistant—the doctor's secretary, his receptionist, his nurse—was discussed. At the Ontario Medical Association's Third Public Relations Conference, held in Toronto, February 1,

this importance was emphasized when discussants considered the advisability of medical societies developing local medical assistants' groups. It was the consensus that such organizations would be of value both to the assistant and to her doctor-employer.

The organization of medical assistants' groups has been a popular development in the United States. The movement, sparked by the American Medical Association, began at the local level, spread to the state stratum, and recently saw the establishment of a national association uniting several state organizations.

It will be obvious that the medical assistant plays a significant role in creating good public relations for the doctor and in improving his efficiency. Any attempt to make her more effective in this capacity is a wise move. This the medical assistants' group seeks to do. But it needs guidance and assistance. And the logical source is the medical society.

The greatest obstacle to the development of such groups is the profession itself. This is based in the expressed fear that the organizations will become pressure groups, and the tool of organized labour.

Dr. John E. Manning, of Saginaw, Michigan, invited by the O.M.A. to discuss organization of medical assistants at the PR Conference, pointed out that these organizations in the United States precluded union activities through their constitutions. He warned his listeners that the groups *will* organize, with or without the help of the medical societies.

"Is it not better that the impetus come from organized medicine?" he asked.

What does the medical assistants' group do? This question may be answered by considering the following list of projects suggested by the A.M.A.:

Scientific programmes presented by the local medical society.

Programmes on public relations, medical ethics, legislation or other socio-economic subjects of significance, presented by the local society.

Educational courses on medical and socio-economic topics which assistants plan with other medical organizations.

Meetings to help assistants develop better understanding of health insurance.

Charm and good grooming course.

Showing of films.

Programme on telephone techniques.

First-aid programme.

Civil defence training.

Study programmes on local health agencies.

Placement bureau for doctors' office employees.

Establishment of teen-age "future assistants" clubs in connection with recruitment projects.

Preparation of a chapter newsletter.

Joint meetings with other assistants' groups in the area.

Philanthropic projects: benefit dances, fund drives and projects in connection with local hospitals, health agencies; rummage and white elephant sales; shipping of medical supplies abroad; rehabilitation camp programmes; personal shopping for hospital patients; toys for patients; preparation of hospital dressings.

In the interest of improving community medical care, creating better doctor-patient relationships, and improving business practices, the medical society might wisely consider sponsoring, guiding and assisting medical assistants' organizations. Further information may be obtained from the Canadian Medical Association, 150 St. George Street, Toronto 5, Ontario.

GENERAL PRACTICE

THE FAMILY DOCTOR

Is THE GENERAL PRACTICE of medicine and surgery destined to disappear in the foreseeable future with the specialists, and particularly the internist, taking over the work of the family doctor? Is medical care becoming so complicated that we should plan medical practice to become a group or clinic effort of specialist-trained men? These are interesting questions.

The prophecy that the general practitioner will disappear would have been a little more plausible a few years ago than it is today. There has been a renewed interest in the role of the general physician. In the United States they have developed in eight years the American Academy of General Practice, some 20,000 strong. The College of General Practitioners of the United Kingdom has a membership of 3,000. The College of General Practice of Canada at two years of age has 1,200 members.

These collective efforts of general practitioners for an improved general practitioner service are not founded primarily upon a desire for a brighter spot in the medical world. Rather are they built on the conviction that this is the best way to bring the best of medical care to the greatest number of people and at the most reasonable cost. General practice is believed worthy of an emphasis at all levels of medical training comparable to that given a specialty.

Where the state takes over control of medical services—as it has done in more than 35 countries—in every instance it has drawn a sharp line between the general physician and the specialist. The latter has become a consultant. Though we do not wish to use this as an argument, we cannot ignore its implications.

About 40% of Canadians live in rural areas or in towns where the general physician has the field all to himself. It is unrealistic and impractical to think that good medical care can be brought to these people other than through good general practice. But this is not the most compelling reason for an improving and expanding general practitioner service.

The good general practitioner, wherever he is, whether in city or country, gives services of a unique and special value. He is in the most favoured position to relate a wide range of non-medical activities to the practice of medicine. He can best appreciate the effects of the patient's environment on his health and best understand the impact of economic and social conditions on the patient's home. He can diagnose with reasonable accuracy, and treat reasonably well, 85% of the ailments and injuries of people.

In saying this we are convinced that far too much emphasis has been placed on the com-

Canad. M. A. J.
Mar. 15, 1956, vol. 74

plexity of modern medical treatment from the standpoint of the doctor who treats the whole person. Of course medical science has become more complicated for the research worker who, in studying man, is continually fractioning him into smaller and smaller parts. But for the family doctor who is to treat him by putting him together again, medical practice has become simpler. Why? Simply because the family doctor can do much more for people and do it so much more quickly than a few years ago. Every new specific treatment has wiped out a rash of speculations. Every discovery has made something simpler. If this is not so, we have a wrong appreciation of progress.

For instance, extensive fields of medical practice, such as that of venereal disease, have almost disappeared with the discovery of antibiotics. Others such as the surgery of the nasal sinuses and mastoid have been markedly limited. On the positive side, the family doctor can now cure many formerly incurable afflictions. He should be able to control the diabetic process, slow down the aging process, abruptly stop most infections, calm many of the agitated, and reverse the destructive power of pernicious anæmia. Under our expanded hospital facilities he now attends his confinements more safely and without the previous weary hours of waiting. In brief, his curative powers have been growing every day.

However, when we say that family medical practice—and this includes within its range obstetrics, minor surgery, pædiatrics, and general medicine—has become simpler, this is based on the assumption that the family doctor has kept abreast of those medical advances that have made it simpler. This is not too difficult. It demands good preparation, plus a habit of continuing study—of attendance periodically at refresher courses.

The College of General Practice, like its sister organizations in the United States and the United Kingdom, is a rallying point for general physicians. They have found that group support is a powerful stimulus to the individual in advancing what he believes is desirable. As family doctors develop their programme, both within and without the College of General Practice, they aim to increase confidence among themselves and between themselves and their specialist colleagues. They know that good medical care today is a co-operative effort by all groups of workers in the medical field.

The good family doctor is able to deal with most of the ills of people, and knows when and where to get help for the remainder. One part of this is just as important as the other part. The family doctor is not going to be displaced. It is also true that the specialist is here to stay and it is very important that the family doctor appreciate the limitations of his knowledge and ability and, where necessary, refer the patient to a specialist at an early stage.

The Canadian general practitioner is in a favoured position to continue as the nation's family doctor. With proper preparation for this task and a firm link with the latest scientific techniques, he will give a very commendable account of himself as clinician, counsellor and friend to his patients. V.W.J.

MEDICO-LEGAL

PERMISSION

T. L. FISHER, M.D.,* *Ottawa*

NO DOCTOR, be he surgeon, physician or obstetrician, has any right to administer treatment or to operate without the permission of the patient or someone legally competent to speak for him. The only significant exception to this general statement is when a patient is unable, because of unconsciousness, for example, to give permission for treatment which is urgently necessary at the moment. Then the doctor must, to do his legal and ethical duty, give the necessary treatment without permission. Even here, some qualification is necessary. If minor measures will allow enough recovery, safely, that the patient can give permission for any further necessary treatment, the minor procedures alone should be employed until permission has been obtained, even though it can be foretold that major treatment may be necessary to rectify the condition as fully as possible. It cannot be emphasized too often that, with this one exception, doctors have no right to and must not give treatment until permission has been obtained for that treatment.

In the judgment quoted in the article on "Trespass" (*Canad. M. A. J.*, 74: 308, 1956) it was implied that permission must be specific and it must have been obtained in a way and under circumstances that demonstrate the patient's awareness that he was giving permission and that he knew what he was giving permission for.

Under many circumstances permission is implied. For general examinations, many office procedures and the prescription of medicines, permission is implied by the fact that the patient of his own free will consulted the doctor and followed instructions, filled the prescription and took the medicine. Even with this largest group of patients, though, there are some whose circumstances are just enough different for permission to be more specifically sought—the employee sent by the employer for examination or treatment, for example. That person or any other coming to consultation in circumstances a little bit different, should be asked whether he

*Secretary-Treasurer, Canadian Medical Protective Association.

wishes examination and treatment before either is given.

Generally speaking, the more important the procedure, the greater its risk, the more destructive its nature, the greater the need for specific permission, until, beginning with relatively minor things like marrow punctures, pelvic examinations under anæsthesia, or cystoscopic examinations, and ending with surgical excision of tissues, permission should be obtained in writing and the permission form filed and kept. When a procedure such as cystoscopy or shock therapy must be repeated, and any significant time has elapsed since it was done first, permission should be obtained again.

The manner of obtaining the written permission is most important; it is, perhaps, more important than slight differences in the wording of various permission forms. It will be recalled that, in the judgment previously referred to, the judge questioned the meaning and, by implication, the validity of part of the wording as well as the manner in which the permission form was presented to the patient. This latter—how to be assured that the patient knows he is signing a permission form and understands it—is the reason for these remarks.

When a procedure is serious enough to require written permission, that permission, to protect the doctor if it is challenged later, must be obtained carefully. The request for permission should be preceded by a fair explanation of the condition from which the patient is suffering and the procedure which it is proposed to use for relief or cure. That explanation should be a fair one, suited to the mentality of the patient; there is no use, for example, supplying a semi-scientific explanation to a dullard who could not work his way through public school; it should give some estimate of the probable result to be obtained, it should contain appropriate reference to the risks, especially if greater than usual; on the other hand it should not be so detailed as to confuse the patient, and it certainly should not stress the risks so strongly that the patient refuses necessary treatment. There can be no doubt that, for private or public patient, the explanation should be given by a doctor. Practically speaking, none but him can give it.

The method of obtaining a patient's signature on a permission form is important. A very common but a wrong way is to make the permission form one of several forms a patient, confused, worried, sick and sometimes frightened, is handed in the admitting department of a hospital and, as the patient remembers it later, is told to sign with a brief reference to the fact that one of the forms is permission for treatment or operation. Such permission is no permission at all. In the judgment quoted in the Feb. 15 issue of this Journal the judge implies that the manner of obtaining the permission failed to inform the patient what she was giving permission for.

The proper way to get operative or treatment permission is to be sure, first, that the patient is fully informed of the condition that needs treatment and of the contemplated procedure and, second, that he knows he is signing permission for it. It seems likely that the time is coming shortly, if it has not arrived already, when, if signed permission be needed, it will be obtained by the doctor to whom it is being given. This should not be too difficult a procedure. Permission forms could be kept readily available in doctors' offices and on hospital wards. In the office, if permission were obtained after the doctor had explained the condition and advised treatment, the circumstances would be such that the patient never could claim he did not remember giving permission or did not know for what he had given it. In hospital the doctor could get the permission form signed at the time he gives the explanation that always is given in some form before treatment or operation is advised.

For doctors, or in hospitals, where this is deemed inexpedient and it is decided the present methods of obtaining permission are best, certain changes should be made. Permission forms should not be included among other forms which a patient has to sign on admission to hospital. The permission should be obtained by a special person, preferably at a different time. The nurse or clerk obtaining it should be instructed carefully and meticulously how to obtain it; she should state that the form to be signed gives the doctor permission to proceed with the treatment or surgery he has advised. The manner of getting the permission should be such that it constitutes one feature of the admission, something separate and distinct from everything else that goes on. Then and only then can a doctor have any certainty, if a patient claims more or different things were done than had been agreed upon, that the permission form will protect him.

Doctors are not omniscient. All of them realize that, but too many of them forget to say so to their patients. They forget to deal with their diagnoses as opinions. They act as though the opinions were certainties. Surgeons, in cases where they would state doubts freely to another doctor, sometimes act as if they knew exactly what they were going to find at operation and get permission only for some single, specified piece of surgery when, properly, they should not only state their opinion and ask permission to do the work it entails, but should also explain that perhaps more or less or different surgery will prove necessary and get permission for the modified treatment. Patients have a right to as definite an opinion from a surgeon as he can give, but they should know that the surgeon is aware of the right they already possess, the right of decision about how much more or less shall be done than, in cases of doubt, the surgeon says he intends to do.

As a corollary of that point, where no emergency exists surgeons should be cautious and conservative when they think much different or much more extensive surgery is necessary than even their reasonable explanation had made provision for.

To come back to the original thought of the previous article, a person's person is his own; he, not the doctor, has the right to decide what treatment he will have. Permission to administer it must be obtained and that permission must be preceded by an explanation. Only then, if later the patient regrets the action, can the doctor hope to be safe legally.

CORRESPONDENCE

THE FAMILY PHYSICIAN

To the Editor:

In Dr. W. H. leRiche's article in the *Canadian Medical Association Journal* of October 1, 1955 (73: 572), he makes certain interesting statements. Some of these can be accepted as facts because they are documented by sound references; others more sweeping in character are supported neither by reference nor proof.

No one will dispute the need for good family physicians, but one would question his statement that "most specialists work only during office hours". This is obviously not applicable to obstetricians and in general has not been my experience with other specialists, in particular the internist, surgeon or pædiatrician.

More particularly one must challenge his view that "in general many specialists have regular hours and good incomes. Some have very high incomes. Physicians would like to enjoy these advantages and therefore become specialists". He implies that regularity of hours of work and improved economic return are the principal reasons which induce men to undertake specialization. In doing so he does a gross injustice to the majority of specialists whose motivation was to improve their service to the community by prolonged training and restriction of practice to fields where they were well informed and trained to provide better service in the field of their specialty. If one considers the loss of income inherent in the prolonged training which is now required for specialization and the time elapsing after qualification before one becomes established, it is doubtful whether the average specialist does as well financially as the general practitioner. Could Dr. leRiche enlighten us with some facts to support his conclusions in this respect? I would respectfully suggest that there are very few specialists at their peak who command better incomes than good general practioners of the same age group or who enjoy them for so long a time.

One cannot, as has already been stated, disagree with his statement that "the people need good general practitioners. The medical schools should produce such practitioners". This is the primary function of medical education. I am puzzled, however, by his further comment that "if the universities are not doing so at present, their orientation should be changed so that they can do this essential job". Does he imply that in the actual practice of medicine there is a fundamental difference in the management of medical, surgical and obstetrical problems which supports the view that they will be better treated by the family doctor than the specialist? In teaching obstetrics and gynæcology our efforts are directed toward general practice in these fields. We feel that the principles of management are the same whether practised by the family physician or specialist. Can or should we attempt to differentiate in our teaching efforts in this and other important branches of medicine, and specifically in what way would Dr. leRiche suggest this change should be directed?

D. E. CANNELL, M.D.,
B.Sc.(Med.), F.R.C.S.[C.]
Department of Obstetrics and Gynæcology,
University of Toronto,
Toronto 5, Ontario,
January 23, 1956.

To the Editor:

May I reply to Professor D. E. Cannell's welcome comments on my article "The Family Physician: A Vanishing Canadian?" *(Canad. M. A. J.,* 73: 572, 1955). The object of the article was to stimulate discussion, and it is heartening to see that in this aim it has been successful.

The first point to settle is the definition of a specialist. If a man limits his practice and has had certain specified postgraduate training and is certificated, then he is a specialist. But if he has a specialist certificate and does not limit his practice, then he is a general practitioner with a special interest. This might be quibbling, but we must be clear on terminology. In Ontario there are a substantial number of practitioners with specialist certificates, who are doing some general work. Such physicians have a sound influence on improving general technical standards of practice.

Obviously, the obstetrician has irregular hours, but the internist and surgeon can, to a reasonable extent, arrange their work as they wish, depending on whether they do consultant work mainly, or whether they do a greater proportion of general practice. Pædiatricians limit their work to an age-group, so that their hours would, in many instances, be similar to that of the general physician.

Why physicians specialize would be a question to which there could be a number of replies, Many people, as Dr. Cannell states, specialize because they want to do a better job. In others, the motivation would be different or somewhat mixed, as in most human affairs.

As to incomes by specialty, the following figures are from the United States, as details for Canada are lacking.

MEAN NET INCOME OF PHYSICIANS IN THE UNITED STATES 1949* (INDEPENDENT PRACTICE)

Neurological surgery	$28,628
Pathology	22,284
Gynæcology	19,283
Orthopædic surgery	18,809
Radiology	18,540
General surgery	17,765
Obstetrics and gynæcology	17,102
Neurology and psychiatry	16,476
Cardiology	15,589
Pædiatrics	12,016
General practice	8,835

*Weinfeld, W.: Income of Physicians, 1929-1949; *in* Survey of Current Business, U.S. Department of Commerce, Washington, D.C., 1951.

During recent years in the United States and most probably also in Canada the incomes of general practitioners and certain specialists have come closer together, so that there is often not so great a difference between incomes of general practitioners, pædiatricians and internists.

At a conservative estimate, the cost of medical training plus loss of potential income, while studying, comes to at least $25,000 up to the level of the M.D. and one year's internship. During training for a specialty, there would be a loss of potential income of at least $15,000. The specialist starting practice would be in the red to the extent of about $40,000, and he would be about five years older than his colleague who went immediately into general practice. From the American figures, one could estimate how long it would take the specialist to recoup his investment.

In Edinburgh, the Department of Preventive Medicine of the University runs a complete general practice, under the National Health Service, and in this practice students not only learn about the disease and social tensions most commonly found in communities, but they learn to know families in terms of their total environment.

In the new Medical School in Durban, the major clinical departments are Medicine, Surgery, Obstetrics and Gynæcology, and Family Practice, the latter including clinical preventive medicine and pædiatrics.

ONTARIO HOSPITAL POPULATION, 1951			ILLNESS IN THE CIVIL SERVICE, CANADA, 1952 - 1953	
Rank order	*Condition or disease*	*Percentage of total cases*	*Condition or disease*	*Percentage of total cases*
1	Confinements	16.6	Influenza	22.4
2	Newborn care	16.1	Accidents, poisoning, violence	5.9
3	Respiratory disease	14.0	All other respiratory diseases	5.7
4	Circulatory disease	4.7	Bronchitis	4.7
5	All neoplasms	4.5	Acute pharyngitis, hypertrophy of tonsils and adenoids	4.3
6	Appendicitis	3.8	Symptoms and ill-defined conditions	4.2
7	Fractures	3.6	Disease of stomach and duodenum	4.0
8	Disease of intestine, gallbladder, liver, peritoneum and pancreas	3.5	Acute nasopharyngitis	4.0
9	Disease of female genital organs	2.7	Arthritis and rheumatism	3.9
10	Disease of skin	1.8	Diarrhœa and enteritis	3.8

It is good to hear reaffirmation that the primary function of medical education is to produce good general practitioners. This being the case, it would indicate a need for at least a few general practitioners to be on the clinical teaching staff of medical schools.

There is no fundamental difference in the technical management of medical, surgical and obstetrical problems, whether carried out by a specialist or general practitioner, but there is a difference in emphasis and orientation.

Perhaps we need a small illustration here in terms of a true story. A wealthy family came to live near a large city. The wife was pregnant and she went to a good obstetrician. She had a normal labour and the baby was fine. One week after returning home, she developed a uterine hæmorrhage and returned to hospital for a few days. The baby stayed at home. The father spent those hospital days transporting the mother's milk to the infant in a small freezer. This annoyed the infant, who did not like cold milk, and he experienced a series of digestive disturbances, which were solved in due course by a pædiatrician. When the mother returned home, she developed a mastitis, which was successfully treated by another doctor. Presumably, if this had progressed towards an abscess, she would have had to see yet another physician, a surgeon.

This family spent a large sum of money. Technically, each physician had done his best, but as medical care for a family it was most unsatisfactory. If only one of the physicians concerned had been interested in the whole family, the birth of a son and heir could have been the happy experience it should have been, instead of a state of near chaos at high cost.

In the list given above are shown disease and conditions in hospitals in Ontario and in the Canadian Civil Service. The differences in incidence are clear. The question arises whether medical students are not getting too much of hospital diseases, and then having to deal with a different set of conditions in general practice. This remark does not apply to obstetrics, as 96% of infants are born in hospital in Ontario, so that hospital experience is general experience in this field. Whether hospital practice meets the common minor gynæcological conditions should be investigated. These are somewhat different approaches to the same problem, which is the training of good general practitioners.

Perhaps more issues have been raised in this letter than have been settled, but the discussion has been pleasant and stimulating, and quite possibly we could continue, subject to editorial approval.

W. HARDING LERICHE, M.D.

393 Ruth Avenue,
Willowdale, Ontario,
January 31, 1956.

DR. MAX RATNER: IN MEMORIAM

[*The following tribute to the late Dr. Max Ratner, the Montreal surgeon who died in December, has been sent in by a patient and is printed as an example of a feeling towards physicians which, though undoubtedly very common, is seldom expressed in print.*]

To the Editor:

The recent and sudden death of the well-known urologist and surgeon, Dr. Max Ratner, has saddened me terribly. To me this unforgettable doctor was exactly the type of person of whom a prominent Vienna professor of medicine of the last century made the well-known dictum: "Nur ein guter Mensch kann ein guter Arzt sein" (only a good man can be a good doctor).

I feel as if I had lost one of my own blood relations, for the following reason:

A few years ago I had developed trouble in the prostate, for which I was examined as an outpatient in local hospitals, with a recommendation for early operation. Unfortunately, at the end of a year I was still unable to get a public ward bed and was becoming desperate with pain and the fear of cancer, which is in my family. Through a local druggist friend, who had had a similar complaint treated by Dr. Ratner, I was given an introduction to Dr. Ratner, who told my friend to send me to his private office the next afternoon.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

I had previously heard of him as a very good surgeon and, what is perhaps even more important, as a very fine and kind man. This I found out for myself the moment I stepped into his office. After he had examined me and I had expressed my fears to him, he said kindly, "Do not worry; I myself am going to see to it that you have a bed in the Jewish General Hospital within a week and I myself will perform the operation. Because of your circumstances, I will not charge you anything and the hospital bill we shall send to the City Hall." And so it was. Four days later I received a telephone call to come to the hospital. Soon after, I was operated on by Dr. Max Ratner, who became my real benefactor and a very dear friend of mine.

After my discharge from hospital he insisted that I should see him at intervals in his private office. Not only did he not charge me anything for these visits, but he also supplied me with pills. After that we saw each other pretty often, for I live near his office. Every time he would stop me, inquiring about my health and being glad to hear that I was all right. The last time I saw him was just a few weeks before he died.

There are no words strong enough to describe my immense gratitude to this wonderful doctor and man and my profound sadness because of his death. I wish to express my deepest and most sincere sympathy to his family on their great loss. May the thought that their dear departed one was a very fine and kind man and thus has endeared himself to many of his patients including myself, be to them a little consolation in their grief. And to you, my very dear and unforgettable Max, in bowing my head in deep reverence, I say: "Rest in peace until we meet again in a better world, where there will be no suffering and death."

STANLEY GRABIANSKI

1183 Bishop Street,
Montreal, Que.,
January 12, 1956.

METHYL ALCOHOL POISONING

To the Editor:

Doctors D. J. Tonning, D. W. Brooks and C. M. Harlow are to be congratulated on their impressive piece of work (*Canad. M. A. J.*, 74: 20, 1956). To my knowledge, theirs is the only outbreak of methyl alcohol poisoning of any magnitude without mortality or residual blindness.

I am sure the profession would like to know to what factors Dr. Tonning attributes his remarkable therapeutic success.

C. KONYER, M.D.

De Pauls Lane,
Burlington, Ont.,
January 11, 1956.

CHANGE OF ADDRESS

Subscribers should notify the Canadian Medical Association of their change of address *two* months before the date on which it becomes effective, in order that they may receive the Journal without interruption. The coupon on page 73 is for your convenience.

OBITUARIES

DR. FERNAND BELISLE, surgeon at Hôtel-Dieu Hospital, Valleyfield, Que., died on January 5 at the age of 38. A native of St. Stanislas de Champlain, he graduated in medicine from Laval University and subsequently specialized at hospitals in Philadelphia and Williamsport, Pa. At the time of his death he had been attached to the Valleyfield hospital for only 18 months.

Dr. Belisle is survived by his widow and a daughter.

DR. JOHN CALVIN BLACK, 74, for 50 years a medical practitioner in Regina, Sask., died there on January 13. Dr. Black was born at Oxford Station, Ont., and graduated from McGill University in 1905. He had been in general practice in Regina continuously since that date. He was a Fellow of the Royal College of Surgeons and an active member of several other medical organizations.

Dr. Black is survived by his widow, a son and a daughter.

DR. JULES A. BRIEN, 60, deputy superintendent of the Montreal food inspection service, died as a result of a heart attack on January 21. A graduate of the University of Montreal, he entered the public health service in 1930 and shortly afterwards took postgraduate studies at Johns Hopkins University. Dr. Brien was also a professor at the School of Hygiene, University of Montreal.

DR. FRED BRILLINGER, a practising physician in Peekskill, N.Y., for the past 28 years, died on January 10 after a short illness. Dr. Brillinger, who was born in Stouffville, Ont., in 1901, graduated from the University of Toronto in 1925. After three years' internship at Grasslands Hospital, New York, he opened a practice in Peekskill. During World War II he served for three years in the U.S. Army with the rank of colonel.

Dr. Brillinger is survived by his widow (also a physician), a son and a daughter.

DR. JOHN MACKENZIE BROWN, 77, Los Angeles, Calif., physician, died in that city on December 31. Although he had carried on most of his medical career in the United States, he was a native of London, Ont., and a graduate of the University of Western Ontario. Dr. Brown was in charge of the ear, nose and throat service at the Los Angeles General Hospital. He had served as president of the American Academy of Ophthalmology and Otolaryngology and of the Otolaryngology Society.

Dr. Brown is survived by his widow and two sons.

DR. KENNETH F. DAVIS, 50, chief of the male medical service at the Weston Sanatorium, died in hospital on January 12 after a lengthy illness. A native of Toronto and graduate of the University of Toronto in 1929, Dr. Davis had served in sanatoria as a staff doctor for 25 years.

Dr. Davis is survived by his widow, four sons and one daughter.

DR. SYLVIO DRAGON, 59, physician of St. Hyacinthe, Que., died on January 20 after a long illness. A native of St. Denis-sur-le-Richelieu, Dr. Dragon was educated at the St. Hyacinthe Seminary and graduated in medicine at the University of Montreal in 1924.

Dr. Dragon is survived by his widow, three sons and two daughters.

DR. JAMES J. HOGAN, Point St. Charles, Que., physician, died on January 21 in the Royal Victoria Hospital, Montreal, after a long illness. A graduate of Edinburgh University and McGill University, he subsequently

studied at Harvard before going into practice as an industrial physician.

Dr. Hogan is survived by his father, two brothers and a sister.

DR. IVAN W. JAMES, 58, died on January 15 in California. Dr. James was a graduate of Queen's University, Kingston, and was formerly in practice in Carleton Place, Ont. In 1941 he became a member of the Canadian Pension Commission.

DR. WILLIAM S. JOHNS, 55, physician of Port Credit, Ont., and vice-president of the Peel Memorial Hospital, died on January 17 after suffering a heart attack. Born in Windsor, he graduated from the University of Western Ontario in 1928 and interned at the Toronto General Hospital. A medical practitioner and surgeon in Port Credit for the past 10 years, he was previously on the staff of the Toronto Hospital for Sick Children.

Dr. Johns is survived by his widow, two daughters and a son.

DR. HARRY BELL KIDD, 59, Ottawa physician and assistant medical director of the Metropolitan Life Insurance Company for the last 20 years, died on January 18 in Florida. A native of Burritt's Rapids, he graduated in medicine from Queen's University in 1929. For several years he was associated with the late Dr. R. S. Stevens, Ottawa heart specialist. After postgraduate courses at two United States hospitals he joined the medical staff of the life insurance firm in 1935, and was appointed medical director at the head office in 1936. He also served as secretary and subsequently as president of the Ottawa Medical Reporting Society, and was a charter fellow of the Ottawa Academy of Medicine.

Dr. Kidd is survived by his widow.

DR. HENRY EDGAR MORGAN, 74, Chesley general practitioner, died on January 4 in Victoria Hospital, London, Ont., after a short illness. Dr. Morgan, who was born in Trecastle, Ont., graduated in medicine at the University of Toronto in 1907. After interning at Fergus for a year he took up practice in Pinkerton for a few months. He established his practice in Chesley in 1909 and was active in it until shortly before his death.

Dr. Morgan is survived by two brothers and four sisters.

DR. LEONARD E. MYLKS, 79, former general practitioner in Birch Hills, Sask., and Niagara Falls, Ont., and former medical officer for the Board of Education in Peterborough, Ont., died in Kingston early in January. Dr. Mylks was born in Algonquin and graduated from Queen's University in 1903. He retired from general practice in 1949 and had since lived on Wolfe Island, near Kingston.

DR. WILFRID S. PETERS died at Brandon, Man., on January 8. Born at Spencerville, Ont., 67 years ago, he went west with his family in 1890. After graduating from Manitoba Medical College in 1910, he practised at Souris and Brandon. He was a Fellow of the American College of Surgeons, and the President of the Manitoba Medical Association in 1938-39. In his later years he restricted his practice to obstetrics and gynæcology.

DR. EARL ALLARD SMITH, 68, formerly a physician and surgeon in Brantford, Ont., died on January 21. A graduate of the University of Toronto, he was in general practice in Brantford from 1919 to 1940, when he became a member of the medical staff of the Ontario Hospital at New Toronto. He served in the Royal Canadian Army Medical Corps throughout World War I.

Dr. Smith is survived by his widow and two daughters.

DR. THOMAS TURNBULL, a resident of Winnipeg for over 50 years and one of the first eye specialists in the city, died on January 11 at the age of 83. He was born at Stratford, Ont., and graduated in medicine from McGill University in 1899. For many years he was associated in practice with the late Dr. J. W. Good. He was a Fellow of the American College of Surgeons.

Dr. Turnbull is survived by his widow.

DR. R. RUSSELL WADDELL, 56, a former chairman of the medical staff of the Hamilton General Hospital, died on January 2 after a brief illness. A native of Hamilton, he graduated in medicine from the University of Toronto, and did postgraduate studies in both the United States and Europe before beginning his practice in 1928.

Dr. Waddell is survived by his widow and a son.

DR. JAMES T. WALL, 65, Vancouver general practitioner, died suddenly on January 13. A graduate of McGill University, Dr. Wall was born in Nanaimo and had lived in British Columbia nearly all his life. He remained in practice until a year ago, when he entered semi-retirement and moved to Nanoose, B.C.

Dr. Wall is survived by his widow, one son and two daughters.

DR. ARTHUR FELIX. We regret to announce the death in London, England, of Dr. Arthur Felix, who was born in Poland in 1887 and gave his name to the Weil-Felix reaction for typhus.

PROFESSOR HORST OERTEL, late Professor of Pathology at McGill University, died in London on January 9, 1956, at the age of 84. Born at Oberlossnitz in Germany, he graduated in medicine at Yale University and then returned to Germany for postgraduate study in Berlin. Under Wundt at Leipzig he absorbed training not only in pathology, but in logic, philosophy and biology. He was a wide reader, and learned to look at history from an objective point of view. In 1907 he was appointed director of the Russell Sage Institute of New York and later spent a year at Guy's Hospital working on experimental nephritis and kidney development. In 1904 he was appointed associate professor of pathology at McGill and pathologist to the Royal Victoria Hospital. Later he was appointed professor of pathology to the University. He received this appointment at a time when there was still in a few men's minds much prejudice against things German. The appointment was therefore at first strongly criticized by these few. But his students (most of whom at first were themselves ex-servicemen) were fortunately more elastic in outlook. With them he soon became popular. He was a good teacher, with a complete grasp of his subject, and had clearcut, emphatic methods in lecturing. Perhaps his material was rather crowded with detail, and his rapid delivery made it difficult to keep up with him. But one student capitalized on this by taking down the lectures *in extenso* and having them printed in pamphlet form. As the lectures did not vary to any extent from year to year these copies were in great demand. Like many other teachers Professor Oertel had his particular *bête noire*, and he would frequently attack the long-held but to him completely erroneous view that there was any causal relationship between alcohol and cirrhosis of the liver.

He made friends of his students. His study door was always open and he gave freely of advice and guidance. As soon as the Osler Club of McGill was formed he was drawn into it, and became a steady supporter. He has left a definite impress of his personality on the teaching of pathology at McGill. H.E.M.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

ABSTRACTS *from current literature*

MEDICINE

The Evaluation of Antihypertensive Procedures, with Particular Reference to Their Effects on Blood Pressure.

A. C. CORCORAN, H. P. DUSTAN AND I. H. PAGE: *Ann. Int. Med.*, 43: 1161, 1955.

This paper, among other features, contains a closely reasoned discussion of the desirability and feasibility of home readings of the blood pressure. These workers have devised what they describe as a numerical "severity index" which they consider to be indispensable for the evaluation of the effects of antihypertensive drugs and procedures. It is their opinion that the data selected for their index as representative of arterial pressure cannot be based on casual readings of the blood pressure, because such readings average 10 to 20 mm. Hg higher than the corresponding week's means of readings made twice daily, either by nurses in the hospital or by the patient or his family at home. This difference between casual readings and weekly means of readings is not diminished by treatment with antihypertensive agents, and varies widely.

Means of pressures measured in hospital and means of home readings closely correspond and are considered equally representative of the actual arterial pressure. Since patients cannot be retained in hospitals for indefinite periods of time, and since long-term effects are measured in the evaluation of any antihypertensive drug or procedure, the authors advocate the routine measurement of blood pressure in the home, preferably by a member of the patient's family, and the preparation of weekly mean figures from these repeated readings.

Although the inadvisability of home readings of blood pressure has been urged on the assumption that the making of these will create a neurotic obsession, the impression of the authors is that such a procedure does not create an obsession although it may substitute for some other obsession. Their own review of data from patients taking home readings does not show an increased incidence of psychiatric disability as compared with patients who were not making home readings. The writers consider that the taking of home pressures is not really psychologically disadvantageous, and in some cases it proves useful and reassuring to the patient, while providing the physician with reliable data.

S. J. SHANE

The Role of the Psyche in Allergic Disease.

S. S. BURDEN: *Ann. Int. Med.*, 43: 1283, 1955.

In the decade from 1935 to 1945 the practice of allergy became a highly important specialty. As is usual in such situations, the importance of this specialty was somewhat overemphasized and a large number of unrelated diseases were accepted into the allergy fold. This state of affairs progressed to the point where the possession of equipment for skin tests almost became the badge of a specialist in allergy. Over a period of years, however, it became evident that the theories of hypersensitivity could not explain all the diseases classified as allergic in origin; and psychiatry began to obtrude into this field. In 1949 Weiss and English stated that "The allergic and the neurotic populations are so large that they must overlap." A relationship has been shown between neurotic character structure and allergic disorder; symptoms similar to those of allergic disorders can occur as the result of psychiatric disturbances.

This paper, containing well-documented case reports, is presented in an attempt to bear out the accuracy of these statements. The writer stresses that, in order to be a good allergist, it is necessary to be equipped with something more than just bottles of extract and syringes. That "something" is the ability to blend allergic therapy and psychotherapy to meet the needs of the patient.

Where psychological factors either predominate or are the sole cause of the patient's illness, the physician must determine whether he is willing, or sufficiently competent, or both, to treat the patient, or whether he should refer him to a psychiatrist. This decision is most important, since harm can be done by a faulty psychosomatic approach, and such an approach may be resented by the patient.

The alert allergist should be able to distinguish the true allergic patient from the so-called para-allergic. If this is done, no patient need be subjected to unnecessary psychotherapy, or to prolonged and unnecessary allergic investigation and treatment. The conscientious physician will properly evaluate the physical and psychological factors in these patients, and treat them as they need to be treated. Such an approach will result in much more satisfactory relief of symptoms for a great many people with allergic disorders.

S. J. SHANE

Arteriosclerotic Aneurysm of the Abdominal Aorta: Some Pathological and Clinical Correlations.

C. CRANE: *New England J. Med.*, 253: 954, 1955.

The arteriosclerotic aneurysm of the abdominal aorta is frequently amenable to excision and replacement by a graft. For this reason patients with this condition warrant careful observation. The author reviewed the case records of 44 patients. Coronary artery disease was the rule, as well as widespread arteriosclerotic changes. The majority were hypertensive. In only three cases did the aneurysm lie above the level of the renal artery.

The experienced examiner can determine the size of an abdominal aortic aneurysm by palpation. The size can also be measured from an x-ray film of the abdomen, with correction for the distortion due to the approximate 10 cm. distance of the aneurysm from the film.

Danger to the patient is directly related to the size of the aneurysm. Small ones (6 cm. in diameter or less) should be watched carefully; if they increase in size or if symptoms occur which suggest leakage, resection should be considered. Large aneurysms are very liable to rupture; those of 9 cm. diameter carry with them a prospective 80% mortality within a few months. Any large aneurysm should be resected unless operation is contraindicated by cardiac disease or other serious physical abnormality. Wiring of aneurysms is not an effective form of treatment.

NORMAN S. SKINNER

The Rectal Absorption of Mercaptomerin Labelled With Hg^{203}.

J. K. AIKAWA AND W. R. CARLSON: *Am. J. M. Sc.*, 230: 622, 1955.

Although it is recognized that the most reliable method of administration of a mercurial diuretic is by parenteral injection, this is far from practical for routine use. A mercurial diuretic agent, recently introduced in suppository form, has been shown to elicit a diuretic response clinically and to produce no local rectal irritation. However, no data were available regarding the absorption of this organic mercurial compound when administered per rectum. The purpose of this study was to determine, in subjects with and without œdema, the absorption, blood concentration and urinary excretion of mercury administered as a single suppository of mercaptomerin sodium (Thiomerin), which had been labelled with Hg^{203}.

A single suppository of this diuretic labelled with Hg^{203} was administered to each of 13 subjects, 8 without œdema and 5 with congestive heart failure and peripheral œdema. Serial specimens of blood and urine were obtained and the serum concentration and total urinary excretion of radioactivity were correlated with the diuretic response. It was found that absorption of

a minimum of 4.5 mg. of mercury per rectum was necessary to evoke diuresis. Only two subjects, one with œdema and one without, showed a diuretic response. The maximum concentration of radioactivity in the blood, although erratic in time of appearance, correlated well with the total urinary excretion of radioactivity.

A previous clinical study, however, on the use of Thiomerin in suppository form had suggested that rectal administration of this drug was effective in maintaining an adequate diuretic response if repeated doses were used. This observation suggests that, although the proportion of mercury absorbed from each suppository is small, repeated administration produces a cumulative effect. S. J. SHANE

The Diagnosis of Sarcoidosis With Special Reference to the Kveim Reaction.

H. L. ISRAEL AND M. SONES: *Ann. Int. Med.*, 43: 1269, 1955.

After investigating 28 patients with sarcoidosis, the authors conclude that the diagnosis cannot be "proved" by biopsy. The finding of sarcoid tubercles in isolated tissue does not establish the presence of systemic sarcoidosis. Their experience indicates that although sarcoidosis has a characteristic histological picture, its differentiation by pathological study from some types of tuberculosis as well as from histoplasmosis and berylliosis is not always possible. In their series, the Kveim test was frequently positive in patients with tuberculosis and frequently negative in patients with sarcoidosis. Despite many reports of the specificity of the test, it cannot be relied upon in its present form to establish the diagnosis of sarcoidosis. Until reliable methods for standardization of the test material are developed, they feel that this reaction should not be employed as a diagnostic test. Nevertheless the Kveim reaction deserves further careful investigation as an immunological phenomenon.

Without accurate knowledge of the etiology of this disease and without a truly specific test, accurate diagnosis of sarcoidosis should continue to depend on: (1) the demonstration of a consistent histological picture; (2) the demonstration of involvement of organs or tissues characteristically affected; (3) the exclusion by all available methods of disease that simulate sarcoidosis—especially tuberculosis, histoplasmosis and berylliosis.

S. J. SHANE

Hemodynamic Changes Associated With Fluid Retention Induced in Noncardiac Subjects by ACTH and Cortisone: Comparison with Congestive Heart Failure.

R. E. ALBERT, W. W. SMITH AND L. W. EICHNA: *Circulation*, 12: 1047, 1955.

The purpose of this study was to determine whether fluid retention, induced in noncardiac subjects by means of salt-retaining and water-retaining substances, produces alterations in cardiovascular dynamics similar to changes in naturally occurring congestive heart failure.

In 20 noncardiac subjects, corticotrophin (ACTH) was administered to 12 and cortisone to eight. Essentially similar effects were produced by the two drugs.

When fluid retention was absent or less than 5 lb., hæmodynamic changes were absent or limited to slight increases in right ventricular, right atrial and systemic arterial pressures. These pressure changes were somewhat more marked when fluid retention was more moderate, 6 to 15 lb. In neither group did cardiac output or arteriovenous oxygen difference change.

Three subjects gained 16, 19 and 23 lb. of fluid respectively, became œdematous, developed slight cardiac enlargement and manifested mild symptoms of congestive heart failure. The associated hæmodynamic changes of elevation of pressures in the right heart and systemic arteries and increases in "blood volume" were similar to the changes in these functions in congestive heart failure; however, unlike congestive heart failure, cardiac output and arteriovenous oxygen difference remained normal.

Two cardiac subjects, recently "compensated" from congestive heart failure by mercurial diuretics and rest, failed to gain fluid when given corticotrophin.

The hypothesis is explored that the circulatory congestion associated with marked fluid retention in noncardiac subjects represents not congestive heart failure, but a type of noncardiac circulatory congestion which simulates congestive heart failure. The distinction between the two states is here based on hæmodynamic differences in contrast to the traditional view which assumes, on the basis of similarity of clinical manifestations, that all vascular congested states are congestive heart failure. S. J. SHANE

SURGERY

Reappraisal of the Treatment of Hemorrhagic Shock.

F. N. GURD AND C. MCG. GARDNER: *Am. J. Surg.*, 89: 725, 1955.

The authors, having reviewed the role of the myocardium and in particular the importance of the coronary circulation, direct attention to the controversy over the relative theoretical advantages of intravenous and intra-arterial blood transfusions.

In line with current opinion, they feel that this should now be considered a closed matter without further argument. It is concluded that the rate rather than the mode of administration of blood and plasma expanders is the important factor in severe hypovolæmic shock. They refer to their studies at McGill, as well as investigations elsewhere, indicating evidence that right-sided decompensation is also manifest in the left atrium as recorded by intra-cardiac catheterization. Direct augmentations of left coronary blood supply have been shown to improve the status of the experimental animal even without returning his blood volume to normal levels.

A warning is also given of the dangers of overtransfusion. Their investigations demonstrated that if an attempt is made to attain the normovolæmic state too quickly after 75% of the blood loss has been replaced, congestive failure may result. A secondary rise in venous pressure associated with a secondary fall in arterial pressure may be indicative of impending death, which sometimes can be averted by stopping the transfusion.

A. M. DAVIDSON

Bilateral Adrenalectomy in the Treatment of Cancer of the Breast.

T. L.-Y. DAO AND C. HUGGINS: *A. M. A. Arch. Surg.*, 71: 645, 1955.

The first hundred cases of bilateral adrenalectomy, with or without oophorectomy, in advanced cancer of the breast form the basis of this report. The operative mortality has been reduced from 5% to 1% and there is no morbidity, for hormone replacement is safe and adequate. Cases of extensive carcinoma of the breast that have not responded to testosterone, œstrogen or oophorectomy have had a profound regression for more than 30 months; one is still well after 49 months. Cortisone in a dosage of 100 mg. daily may suppress hypercalcuria and hypercalcæmia in patients with extensive osseous metastases, and there may be marked symptomatic improvement, but there is no evidence of actual cessation of bone destruction. The use of sex steroids and cortisone in patients who fail to respond to adrenalectomy has not proved beneficial.

It is concluded that simultaneous bilateral adrenalectomy is a practical therapeutic device for selected cases of advanced mammary cancer, and that it will provide profound and prolonged relief in a small percentage of patients. BURNS PLEWES

Canad. M. A. J.
Mar. 15, 1956, vol. 74

Hæmorrhages From Head Injuries.

M. PAUL: *Ann. Roy. Coll. Surg. England*, 17: 69, 1955.

This Hunterian Lecture delivered at the Royal College is a very comprehensive classification and review of dynamics, pathology, clinical findings and treatment of the various types of hæmorrhages encountered in head injuries. The author, feeling that certain accounts in standard texts are at variance with some observations he himself has made, undertook a special study of the subject and presents some interesting concepts worthy of consideration.

Although it is now well over a century since Bell originally put forward the theory that the initial separation of dura mater from cranium was due to the blow and not the accumulation of blood per se, many are still not aware of this. Of course, gradual accumulation of blood, even from low pressure vessels, may then cause this separation to progress by hydraulic wedging effects. Vessels continue to bleed until death supervenes, if exploration is not quickly undertaken.

In the 33 cases of extradural hæmorrhage encountered in this study, bleeding had occurred either from meningeal veins or from large venous sinuses; never from other sources! These vessels are embedded in the outermost layers of the dura mater, with the artery in the deeper tissues relatively more protected. On the other hand, the vein is more superficial and exposed to trauma, in addition to being more friable.

Bleeding from a sinus will be much more profuse and tends to well up quickly in the wound once the clot is evacuated, but as in the case of middle meningeal vessels it responds quickly to packing. A clot originating from the superior longitudinal sinus will extend laterally from the vertex of the skull, affecting the lower limb before the upper. This serves to differentiate it from the middle meningeal hæmorrhage, which the author claims never affects the lower limb.

Subdural hæmatoma always is venous in origin, coming from one of the multitude of thin-walled venules that traverse the space en route from the brain surface to the extradural sinuses. Cerebral and cerebellar hemispheres are depicted as suspended by a mesentery containing these venules. This is a very delicate suspension mechanism, hence trauma at times results in laceration of these with subsequent hæmorrhage. These "bridging veins" usually rupture in the subdural space, because of the much greater length of the vein within this compartment. Eventually the whole surface may be covered but there are usually no localizing signs as deformation is slight.

Subdural blood cysts resulting from a walled-off accumulation of blood in the space between the thick-walled dura and thin arachnoid membrane are found only over the convex surface of the cerebral hemispheres. As neither blood nor cysts are found elsewhere in the subdural spaces, it is assumed they must be absorbed. If not drained surgically they will continue to grow until death occurs. Although this expansion has been presumed to be by osmosis, laboratory evidence is presented of two cases studied, in which it seems that possibly this older conception may not be true and that increasing size may be due to entry of new blood. It is well known that these cysts cease to enlarge once drained.

Actual measurement showed that the intracystic pressure was so small that it is hard to believe that this alone accounts for the triad of severe headache, vomiting and papillœdema. The cerebral deformation is so slowly developed and chronic that it may not produce localizing signs.

In subarachnoid hæmorrhage, the clot covers the brain surface diffusely; massive localized clots are not found, so that localizing signs are absent. A very plausible explanation is given why bleeding in these cases comes from a contre-coup bruising of the cerebral veins rather than a tearing of the bridging veins.

Intracranial hæmorrhage in the newborn is not uncommon, even in a straightforward, unassisted birth. Moreover, there may be no clinical findings or external evidence to suggest this. An extensive sheet of blood in the sub-epicranial space, however, always co-exists. Because of the nature of fusion of dura mater no cases of extradural hæmatoma were seen. Dural septa tear either where the tentorium cerebelli passes on to the surface of the petrous part of the temporal bone or else at the origin of the free border of the falx cerebri from the tentorium cerebelli. This latter tear is usually accompanied by severe hæmorrhage from a tear of the great cerebral vein of Galen. Excessive moulding in addition to producing these could produce tearing of the bridging veins on the convex surface of the cerebrum or also indirectly those inferior to the tentorium cerebelli; this later of course would cause a posterior fossal hæmorrhage.

A. M. DAVIDSON

The Surgical Management of Postanastomotic and Postgastrectomy Malfunctions.

M. E. STEINBERG: *A. M. A. Arch. Surg.*, 71: 95, 1955.

The side-effects which follow operations for peptic ulcer or cancer are sometimes distressing, even incapacitating. In this report of 33 cases of such complaints and loss of weight, the mechanisms of malfunction are placed in three categories: (1) gastric pouch malfunction; (2) dumping or efferent loop syndrome; (3) reflux malfunction with afferent or efferent loop stasis. Crippling side-effects were more frequently due to reflux and enteric loop stasis and a gastrojejunojejunoplasty or "pantaloon" anastomosis is recommended. The greater amounts of stomach removed make reflux malfunction more likely and it is suggested that when more than ¾ of the stomach is resected a pantaloon anastomosis should be done, though it requires greater time and diligence. In this series 25 out of the 33 patients were improved sufficiently by the pantaloon operation to return to work.

BURNS PLEWES

The Exposure Method of Burn Treatment.

C. E. WILSON, K. F. KIMBALL AND S. A. SWENSON, JR.: *A. M. A. Arch. Surg.*, 71: 424, 1955.

The authors, in reviewing their experience with exposure treatment of burns, conclude that the degree of pain in cases handled in this manner has possibly been overemphasized by opponents of this routine. In point of fact, they maintain (as others have in the past) that relative comfort and freedom from offensive-smelling dressings as well as greater freedom of activity is a good morale-promoting factor. They also confirm the observation of less troublesome sepsis in surfaces exposed. Reference is not made to insufflation with anything such as penicillin or aluminium powder. Their studies on topical use of Neomycin and hydrocortisone combined suggest this may be useful in certain types of cases.

A. M. DAVIDSON

The Exposure Treatment of Donor Sites.

P. A. CURTIS *et al.*: *Ann. Surg.*, 142: 248, 1955.

The authors from the Surgical Research Unit of Brooke Army Medical Centre report their encouraging results in the use of the exposure treatment of donor sites to replace the various occlusive dressings conventionally accepted. Although epithelialization is delayed by motion beneath dressings, infection is an even more important complication, both of which are reduced by utilizing the method described. Moreover, infected donor sites originally treated by the occlusive method have been observed to heal better if subsequently exposed. This, of course, has been frequently observed in infected recipient areas. Immediately after the graft has been cut, the donor area is covered by a single layer of fine mesh gauze on top of which is placed temporarily a warm moist pack to achieve hæmostasis.

After a few minutes the pack is removed, leaving only the layer of gauze. The coagulum then hardens and within 24 hours a thin firm covering covers the donor area. This will separate spontaneously as healing proceeds—usually completely within 14-21 days.

A. M. DAVIDSON

OBSTETRICS

Surgical Emergencies in Pregnancy and in the Puerperium.

W. M. BRYAN JR.: *Am. J. Obst. & Gynec.*, 70: 1204, 1955.

The incidence of operations for appendicitis in pregnancy was greater in the author's series than is generally found in the literature. An incidence of 41.6% normal appendices was thought justified by the reduction in procrastination and possible rupture with its attendant increased maternal and fetal mortality.

Red degeneration of a myoma during pregnancy is best treated conservatively; operative removal is rarely warranted. Ovarian tumours that measure 10 cm. or more, that are bilateral or that show evidence of progressive growth should be removed regardless of the stage of gestation.

An abdominal operative scar in the presence of colicky pain constitutes a situation in which intestinal obstruction must be ruled out.

A painful perineum post-partum should be examined carefully for the presence of perigenital hæmatoma. If found, such hæmatomas should be broken down and evacuated with careful resuture. ROSS MITCHELL

The Clinical Evaluation of 2-Acetylamine-5-Nitrothiazole, An Orally Effective Trichomonacide.

A. A. PLENTL *et al.*: *Am. J. Obst. & Gynec.*, 71: 116, 1956.

Routine examination of vaginal smears by the culture method of Kupferberg, Johnson and Sprince showed that 31.6% of gynæcological clinic patients harboured *Trichomonas vaginalis*. Twenty per cent of pregnant patients were found to be infected when the same diagnostic technique was used. About 60% of these patients had symptoms attributable to the disease.

A potent trichomonacidal agent, 2-acetylamine-5-nitrothiazole, was shown to be effective when administered orally. The parasites were eradicated in 35% of infected patients regardless of the presence or absence of symptoms when the drug was administered in a daily dose of 300 mg. as enteric-coated tablets for a period of seven to ten days. With dosages exceeding 450 mg. per day, side-reactions such as anorexia, abdominal cramps, nausea and dark discoloration of the urine became pronounced without a corresponding rise in the parasitological cure rate. There was no demonstrable change in the hæmograms of these patients during and after therapy.

Evidence is presented that *T. vaginalis* can be eradicated by the systemic action of the new trichomonacidal agent. ROSS MITCHELL

Antenatal Pulmonary Embolism.

E. M. SIBTHORPE: *Brit. M. J.*, 2: 1063, 1955.

Three cases of antenatal pulmonary embolism are reported with one maternal death. One infant survived. This condition is rare and has a high mortality rate. In view of this high mortality all cases of thrombophlebitis occurring antenatally should be treated in hospital. There is still controversy over the treatment of thrombophlebitis and pulmonary embolism, particularly in regard to anticoagulants and ligation of veins. ROSS MITCHELL

ORTHOPÆDICS

Fatigue Fractures of the Ulna.

D. L. EVANS: *J. Bone & Joint Surg.*, 37-B: 618, 1955.

Fatigue or stress fractures have been well recognized in the lower limb, but have been much less commonly reported in the upper limb. This article deals with the fatigue or stress fracture of the ulna which appears to be a "lifting fracture". Two good examples are presented, and three further similar fractures have been culled from the literature for comparison. In four of the five instances discussed, the mechanism of production of the fracture is striking. Each fracture occurred in a young healthy person engaged in farm work. In three cases this entailed lifting heavy loads of manure or hay on a fork, and in the fourth, lifting heavy sacks of oats. In each case the position of the forearm at the time of strain was that of full supination with the elbow flexed to a right angle. In this fashion the weight was taken approximately at right angles to the ulnar shaft.

The salient fact in the history in each instance was the relatively gradual onset of pain followed by swelling and eventually some limitation of movement. In a period of two to three weeks a tender swelling appeared at the fracture site. In four of the five cases, x-ray examination was carried out early enough for the fractures to heal following a period of immobilization. In one instance, the fracture progressed to non-union before the diagnosis was made, necessitating bone grafting. J. E. BATEMAN

DERMATOLOGY

The Significance of a Positive L.E. Phenomenon.

R. S. WEISS AND S. SWIFT: *A.M.A. Arch. Dermat. & Syph.*, 72: 103, 1955.

In investigating this problem the authors used the two-hour clot method of Zimmer and Hargraves as modified by Magath and Winkle and the Barnes-Moffatt technique. Their results were identical with both procedures. A smear was considered positive only when the characteristic and fully developed L.E. (lupus erythematosus) cell was present. The tart cell, rosettes, clumping and other types of nucleolysis were regarded only as suggestive or confirmatory.

Twenty-four specimens of blood from patients with varying degrees of penicillin sensitivity were examined. No positive smears were found. The L.E. phenomenon appeared in 3 out of 16 preparations made from patients on hydralazine therapy who had developed some symptoms due to the drug. The resemblance between the signs, symptoms and laboratory findings which may be caused by this drug (e.g. arthralgia, low-grade fever, elevated sedimentation rate, hyperglobulinæmia, liver and kidney damage and skin lesions) and lupus erythematosus is discussed. It is pointed out that the syndrome caused by hydralazine is reversible after the drug has been stopped.

In a selected group of 46 patients with rheumatoid arthritis blood from 5 contained typical L.E. cells. The authors recommend doing periodic L.E. tests on all patients with rheumatoid arthritis. L.E. cells were found in 2 of 55 cases of discoid lupus erythematosus. No positive results were found in five cases of Senear-Usher syndrome. Blood tests were also negative in patients suffering from a wide variety of other diseases.

There is also a discussion of nucleophagocytosis, including the possible relationship between the tart cell and the L.E. cell. Altogether the authors studied preparations from 350 patients and found L.E. cells only when lupus erythematosus was the leading or possible diagnosis.

ROBERT JACKSON

Canad. M. A. J.
Mar. 15, 1956, vol. 74

INDUSTRIAL MEDICINE

Breaking the Sound Barrier and its Effect on the Public.

J. M. TALBOT: *J. A. M. A.*, 158: 1508, 1955.

The author reviews and interprets some of the facts and theories about the sonic boom and its effect on the public and then indicates briefly what the Air Force is doing about control of aircraft noise in general. It is shown that whenever an airplane accelerates past the speed of sound it generates a shock wave that may be transmitted to the ground, where it is heard as an explosive boom; that these waves can cause physical damage to buildings; and that distance from the source is the most important attenuating factor. There is no known way of avoiding the production of the offending shock waves during supersonic flight.

The effects of the sonic boom on the public are considered from both a psychological and an economic viewpoint. During a 20-month period commencing in January 1951, mysterious explosion-like noises over various urban communities in the United States resulted in adverse psychological effects in the exposed populations. These included the startle reaction, fear, and panic tendencies. The true cause of the disturbances was accidentally discovered at Wright-Patterson Air Force Base, Ohio, during the test diving of a jet fighter.

Controlling such supersonic flight operations by restriction to unpopulated areas and to high altitudes will prevent public exposure. Also important is public enlightenment about the cause and effect of sonic booms. Adverse economic conditions could exist.

The magnitude of the general noise problem faced by both military and civil aviation has produced a very difficult problem of control. At certain active Air Force bases the exposure of the surrounding community to noise of flight operations and of engine testing is unavoidable. The main public reactions are annoyance, fear, and real or imagined economic loss. To meet the problem the Air Force supports an extensive research and development programme aimed at determining the effects of aviation noise on individuals and groups and at improved methods of noise suppression and control. It is believed by many that public education and improvement of relationships between air bases and surrounding communities is the best approach to a solution of this noise problem.

MARGARET H. WILTON

Mortality Among Workers in Cigarette Factories.

H. F. DORN AND W. S. BAUM: *Indust. Med.*, 24: 239, 1955.

In 1952 with the co-operation of the American Tobacco Company, a study of the mortality of workers in cigarette factories located in Virginia, North Carolina and Kentucky was initiated. The study covered the period October 1946 through December 1952. In this organization all full-time employees who have been employed at least one year are covered by a comprèhensive health service and group life insurance programme made effective October 1946. The Metropolitan Life Insurance Company underwrites the insurance policies. The information to be analyzed was obtained from this insurance company and from company records.

The mortality from (a) all causes of death, (b) all forms of cancer, (c) cancer of the respiratory system, (d) cardiovascular diseases, and (e) coronary disease, among employees of these cigarette divisions and branches of the American Tobacco Company, was compared with the mortality from the same groups of diseases in the population of North Carolina and Virginia. Most of the employees work in these two states. Information available for certain periods respecting age, sex and colour was considered in the analysis, details of which are given in tables.

The results showed that the total mortality rate of the employees was definitely lower than that for the general population of Virginia and North Carolina. This was true for all causes, for cancer, and for cardiovascular diseases. The death rates for respiratory cancer and for coronary disease among the employees did not differ appreciably from those of the general population.

It was found that the expected number of deaths from respiratory cancer was essentially the same as the observed number. The expected number from cancer—all forms—was 36% greater than that observed, while the expected number from all diseases combined was 48% greater than that observed. In view of the medical care programme provided by the company this favourable mortality rate is not surprising. In the case of each employee dying from respiratory cancer, information concerning occupation and length of employment was received. There was no concentration of deaths in a single group of workers. It did not seem, therefore, that any special hazard existed.

The mortality rate for cardiovascular diseases among these employees also compared favourably with that of the general population of the two states considered. An exact comparison of rates from coronary disease was not possible, but there seemed no reason to believe that it was responsible for any appreciable difference.

MARGARET H. WILTON

A Clinical Study of a Group of Accident-Prone Workers.

J. A. SMILEY: *Brit. J. Indust. Med.*, 12: 263, 1955.

From a total population of 6,450 employed in an aircraft factory, 300 men, who in 1944 had sustained an undue number of accidents, were selected for close medical supervision. During 1945, 87 of this group were proven to be grossly accident-prone. This article presents a detailed discussion of observations made on them and on a random sample of 100 other men from the same factory. The method of investigation is fully outlined.

It was found that these accident-prone men, in comparison with the controls, experienced: (1) three times as much lost time from all causes; (2) more lost time as regards both acute and chronic illness; (3) far greater attendance at the Medical Department for causes other than accidents. They had: (1) more frequent peptic ulceration, (2) more palmar and plantar sweating, (3) more transient albuminuria, (4) more temporary deviation from normal function of the bladder.

The information revealed is discussed under the following headings: age and experience as factors, threat to personal security, lost time, organic illness, albuminuria, disturbances of bladder function, and sweating. Each is treated in comprehensive manner, including relevant observations previously recorded in the literature. More significance is attached to the explanation of observations not previously recorded; viz., the greater tendency of the accident-prone: (a) to have peptic ulceration, (b) to have transient albuminuria under emotional stress, and (c) under the same emotional stress to excrete sweat with a distribution limited to the palms of the hands, soles of the feet, and less often, the axillæ.

Analysis of all evidence during this investigation, in an attempt to promote understanding of the various observations made, indicates the relation between accident-proneness and disorders of the hypothalamus—the centre of the autonomic system. It has been shown that disorders of behaviour result from lesions of the hypothalamus. It is known that the accident-prone complain of symptoms which appear to have no pathology in the organ to which they are attributed. It is now realized that most of these are the result of an autonomic imbalance influenced by abnormal emotional activity and mediated by the hypothalamic region. The possibility of minor imbalances of adrenaline and acetylcholine, resulting in muscular inco-ordination, is also considered.

The results of this investigation would apply only to those engaged in work similar to that of the aircraft industry. They would not, for example, apply to road accidents, where intelligence seems to be a more important factor.

MARGARET H. WILTON

FORTHCOMING MEETINGS

CANADA

ONTARIO MEDICAL ASSOCIATION, Annual Meeting, Royal York Hotel, Toronto. (Executive Secretary, Dr. Glenn Sawyer, O.M.A., 244 St. George Street, Toronto 5, Ont.) May 9-11, 1956.

CANADIAN TUBERCULOSIS ASSOCIATION, 56th Annual Meeting, Sheraton-Brock Hotel, Niagara Falls, Ontario. (C.T.A., 265 Elgin Street, Ottawa, Ont.) May 15-19, 1956.

CANADIAN PUBLIC HEALTH ASSOCIATION, 44th Annual Meeting, Admiral Beatty Hotel, Saint John, New Brunswick. (Dr. G. W. O. Moss, Honorary Secretary, 150 College St., Toronto 5, Ont.) May 29-31, 1956.

CANADIAN SOCIETY OF PLASTIC SURGEONS, Annual Meeting, Chantecler Hotel, St. Adèle, Quebec. (Secretary-Treasurer, Dr. J. A. Drummond, 1414 Drummond Street, Montreal 25, Que.) June 1-2, 1956.

CANADIAN OPHTHALMOLOGICAL SOCIETY, 19th Annual Meeting, Chateau Frontenac, Quebec, Que. (Dr. R. G. C. Kelly, 90 St. Clair Avenue West, Toronto 7, Ont.) June 7-9, 1956.

CANADIAN UROLOGICAL ASSOCIATION, 12th Annual Meeting, Alpine Inn, Ste. Adèle, Quebec. (Dr. D. Swartz, Secretary, C.U.A., 332 Medical Arts Building, Winnipeg 1, Man.) June 7-9, 1956.

SOCIETY OF OBSTETRICIANS AND GYNÆCOLOGISTS OF CANADA—1956 Annual Meeting, Manoir Richelieu, Murray Bay, Quebec. (Dr. F. P. McInnis, Secretary, Society of Obstetricians and Gynæcologists of Canada, 1230 Avenue Road, Toronto, Ont.) June 8-10, 1956.

CANADIAN MEDICAL ASSOCIATION, 89th Annual Meeting, Ecole de Commerce, Quebec, Quebec. (Dr. A. D. Kelly, General Secretary, Canadian Medical Association, 150 St. George Street, Toronto 5, Ont.) June 11-15, 1956.

UNITED STATES

INTERNATIONAL COLLEGE OF SURGEONS, San Jose, California. (Secretariat, U.S. Section, I.C.S., 1516 North Lake Shore Drive, Chicago 10, Ill.) March 22-23, 1956.

AMERICAN PSYCHOSOMATIC SOCIETY, 13th Annual Meeting, Sheraton-Plaza Hotel, Boston, Massachusetts. (Dr. S. Cobb, Chairman, Programme Committee, 551 Madison Avenue, New York 22, N.Y.) March 24-25, 1956.

THIRD MICROCIRCULATORY CONFERENCE, Hotel Schroeder, Milwaukee, Wisconsin. (Dr. George P. Fulton, Chairman, 1956 Microcirculatory Conference, Department of Biology, Boston University, 657 Commonwealth Avenue, Boston 15, Mass.) April 3, 1956.

INTERNATIONAL ANÆSTHESIA RESEARCH SOCIETY CONGRESS, Flamingo Hotel, Miami Beach, Florida. (Dr. T. H. Seldon, Mayo Clinic, Section on Anæsthesiology, Rochester, Minn.) April 9-12, 1956.

AMERICAN COLLEGE OF ALLERGISTS, 12th Annual Meeting, Hotel New Yorker, New York, N.Y. (Dr. F. W. Wittich, 401 LaSalle Building, Minneapolis 2, Minn.) April 18-20, 1956.

INTERNATIONAL ACADEMY OF PATHOLOGY, 45th Annual Meeting, Cincinnati, Ohio. (Central Office, Armed Forces Institute of Pathology, Seventh Street and Independence Avenue S.W., Washington 25, D.C.) April 24-25, 1956.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION, Annual Meeting, Atlantic City, New Jersey. (The Secretary, A.G.A., University Hospital, Ann Arbor, Michigan.) April 27-28, 1956.

AMERICAN GOITER ASSOCIATION, Drake Hotel, Chicago, Illinois. (Dr. J. C. McClintock, 149½ Washington Avenue, Albany, N.Y.) May 3-5, 1956.

MOUNT SINAI HOSPITAL OF GREATER MIAMI, Sixth Annual Seminar, Fontainebleau Hotel, Miami Beach, Florida. (Dr. Harold Rand, Chairman, 4300 Alton Road, Miami Beach, Fla.) May 17-20, 1956.

NATIONAL TUBERCULOSIS ASSOCIATION: AMERICAN TRUDEAU SOCIETY, Statler Hotel, New York, N.Y. (N.T.A., 1790 Broadway, New York 19, N.Y.) May 20-24, 1956.

CATHOLIC HOSPITAL ASSOCIATION OF THE U.S. AND CANADA, 41st Annual Convention, Milwaukee, Wisconsin. (C.H.A., 1438 South Grand Boulevard, St. Louis 4, Mo.) May 21-24, 1956.

WORLD CONFEDERATION FOR PHYSICAL THERAPY, Second International Congress, New York, N.Y. (Canadian Physiotherapy Association, 8 Bedford Road, Toronto 5, Ont.) June 17-23, 1956.

SECOND INTERNATIONAL CONGRESS ON PHYSIOTHERAPY, New York, N.Y. (Miss M. Elson, American Physical Therapy Association, 1790 Broadway, New York, N.Y.) June 17-23, 1956.

SOCIETY OF NUCLEAR MEDICINE, Hotel Utah, Salt Lake City, Utah. (Secretary, Dr. R. G. Moffat, 2656 Heather Street, Vancouver 9, B.C., Canada.) June 21-23, 1956.

OTHER COUNTRIES

SECOND INTERNATIONAL CONGRESS OF RADIOPHOTOGRAPHY, Paris, France. (Secretariat, S.I.C.R., Via Nazionale 200, Rome, Italy.) April 4-8, 1956.

ASSOCIATION OF CLINICAL PATHOLOGISTS, Cheltenham, England. (Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W. 9, England.) April 7-9, 1956.

FIFTH PAN AMERICAN CONGRESS OF OTO-RHINO-LARYNGOLOGY AND BRONCHO-ŒSOPHAGOLOGY, San Juan, Puerto Rico. (Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico.) April 8-12, 1956.

NATIONAL ASSOCIATION FOR MENTAL HEALTH, Annual Meeting, Harrogate, England. (Miss Applebey, O.B.E., 39 Queen Anne Street, London W.1, England.) April 12-13, 1956.

INTERNATIONAL CONGRESS FOR THE SOCIAL REHABILITATION OF THE LEPER, Rome, Italy. (M. F. Sarsale, International Congress for the Rehabilitation of the Leper, Via Condotti, Palazzo Malta, Rome.) April 16-18, 1956.

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Annual Meeting, London, England. (The Secretary, 45 Lincoln's Inn Fields, London W.C.2, England.) April 19-21, 1956.

ROYAL SOCIETY FOR THE PROMOTION OF HEALTH, Annual Congress, Blackpool, England. (Mr. P. Arthur Wells, R.S.P.H., 90 Buckingham Palace Road, London S. W. 1, England.) April 24-27, 1956.

LATIN SOCIETY OF OPHTHALMOLOGY, Second Congress, Madrid, Spain. (Dr. Costi, Montalban 3, Madrid.) April 24-28, 1956.

BRITISH PÆDIATRIC ASSOCIATION, Annual Meeting, Windermere, England. (Dr. P. R. Evans, Institute for Child Health, Great Ormond Street, London W.C. 1, England.) April 25-27, 1956.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, Annual Congress, London, England. (The Secretary, O.S.U.K., 45 Lincoln's Inn Fields, London, W.C. 2) April 26-28, 1956.

INTERNATIONAL UNION FOR PUBLIC HEALTH EDUCATION, Third Conference, Rome, Italy. (M. Lucien Viborel, Secretary-General, 92 rue St. Denis, Paris Ier, France.) April 27-May 5, 1956.

NINTH WORLD HEALTH ASSEMBLY, Geneva, Switzerland. (World Health Organization, Palais des Nations, Geneva.) May 9, 1956.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

PROVINCIAL NEWS

BRITISH COLUMBIA

Dr. Myron M. Weaver has resigned as Dean of the University of British Columbia's Faculty of Medicine, owing to ill health. He will continue as lecturer in medicine.

This is a grave loss to the Faculty of Medicine, which owes so much to the leadership and organizing ability of Dean Weaver. His many friends will deeply regret that he has had to take this step—but overwork and illness have made it advisable. We all hope for his complete recovery.

The sixth annual Medical Ball put on by the medical students of the University of British Columbia will be held on March 22. The profits from sale of tickets will be used to provide bursaries and aid for medical students. These functions are always most successful, and attract a large number of guests.

The General Practitioners' Section of the B.C. Division of the Canadian Medical Association will hold its Annual Convention at Harrison Hot Springs, beginning March 17. The following guest speakers will deliver addresses: Dr. W. Ford Connell, Professor of Clinical Medicine, Queen's University; Dr. Walter C. MacKenzie, Professor of Surgery, University of Alberta; Dr. Howard C. Stearns, Professor of Obstetrics and Gynecology, University of Oregon; and Dr. Donald H. Williams, Associate Clinical Professor of Medicine and Lecturer in Dermatology, University of British Columbia.

The Annual Meeting of the Section will be held, and officers elected for the coming year.

A notable programme of entertainment for members, their wives and visitors, has been arranged.

The recent death of Dr. Malcolm M. McEachern in Chicago is of great interest to the profession in B.C. and especially Vancouver. Dr. McEachern was general superintendent of the Vancouver General Hospital from 1913 to 1922, and was asked by the newly formed American College of Surgeons to take the position of Secretary of the organization. He filled this position for many years, concentrating on hospital management, and was largely responsible for the preparation and formulation of the requirements for accreditation of hospitals in the U.S.A. and Canada. He was well-liked by all.

At the current session of the B.C. Legislature, Premier W. A. C. Bennett has expressed agreement with the suggestions made by the Hon. Paul Martin, Minister of National Health and Welfare, relevant to the introduction of a national health insurance scheme. This is being watched with the keenest interest by all medical men.

The B.C. Hospital Insurance Service has recently released figures on the cost of hospital care, or rather the share of the cost paid by the B.C. Government, in the past six years (January 1, 1949 to March 31, 1955). The total is $126,675,000, of which $1,000,000 was paid to hospitals outside British Columbia. This amount was paid for 1,250,000 B.C. residents who received hospital care, an average of $100 per patient—the largest bill to date being over $18,000 for one case. The average day's cost has grown yearly. In 1954 the average day's stay was 10.31 days, and the average bill $125. In addition to this, the patient pays a cover charge of one dollar a day, known as "co-insurance".

The government is attempting to freeze hospital costs at the 1954 figure—but in view of steadily rising wages and costs in every other department of industry or employment, it is difficult to see how this attitude can be maintained, unless poorer service is contemplated. Naturally, hospital managements, as well as hospital staffs and employees, are gravely concerned over this action on the part of the government. It is only fair to the latter to point out that hospital costs are exceeding the portion from the sales tax allotted for this purpose—and are likely to get even further ahead as hospitals increase in size and number. J. H. MACDERMOT

MANITOBA

The University of Manitoba has set up a surgical research laboratory under the supervision of Dr. Colin Ferguson, Chairman of the Department of Surgery. It is now being built in the east wing of the Medical School, and will enable staff members to develop new surgical techniques and expand research facilities.

An exhibition of British medical books was held in the new Medical Library from February 27 to March 3.

The annual meeting of the Sanatorium Board of Manitoba was held on February 10. Dr. E. L. Ross, Medical Director, referred to the reduction in deaths from tuberculosis in Manitoba. In 1935 there were 432 from this cause and in 1955 only 72. Even this small number, however, constituted a challenge and a further reduction could be made. Most of the deaths among Indians occurred before the age of 30, but among white people half were over 50 and one-third over 60, and in many of the older people illness was of short duration. The x-ray is the only reliable detector of significant disease. X-raying is done through stationary clinics such as the Central Tuberculosis Clinic, travelling clinics, general hospital admissions, and surveys of the white, Indian and Eskimo populations. Vaccination with BCG is done on contacts, student nurses, sanatorium staff, Eskimos and others. Tuberculosis deaths among Indians are one-tenth the number of 15 years ago. One hundred and seventy-four Eskimos are now in Manitoba sanatoria. An active rehabilitation programme for patients discharged from sanatoria is carried out. ROSS MITCHELL

ONTARIO

The handsome new wing of the Doctors Hospital, Toronto, which will greatly increase the accommodation in this privately owned hospital, in which a large number of Toronto physicians now find facilities for caring for their patients, was opened on January 20 by the Minister of Health, the Honourable Mackinnon Phillips. In his opening speech, the Minister referred to the three classes of hospital in Ontario—public hospitals, private hospitals, and nursing homes. He admitted that nobody knew how many of the last-named were in existence, and referred to the need for their supervision. He felt that private hospitals started by private enterprise and preserving high standards were a valuable asset to the community. He therefore welcomed the addition to the Doctors Hospital.

QUEBEC

On January 20, His Excellency, the Right Honourable Vincent Massey, Canada's Governor-General and Visitor of the Royal Victoria Hospital in Montreal, officially opened the hospital's new $7,500,000 wing. He unveiled a plaque in the main entrance to the new 274-bed wing, built with funds subscribed by Montrealers to the Royal Victoria Fund of 1951. The hospital is also taking part in the current Joint Hospital Fund campaign for $7,000,000.

The Executive of our Division at its December 1955 meeting approved and endorsed a Group Disability Insurance contract. Underwritten by the Union Mutual

Life Insurance Company, the contract provides a most comprehensive coverage at a relatively low premium cost. It is one of the first medical group contracts which secures lifetime benefits for accidents and five-year benefits for sickness. All Division members under the age of 70 and in active practice are eligible and, if the required enrolment of 50% is secured, all applicants regardless of individual health history will be insured. It is anticipated that the plan will become effective sometime in February 1957.

Other specific advantages of this contract are that insurance of an individual member cannot be terminated by the company or renewal refused. There are no limitations as to how injuries must be sustained. All disabilities arising after the insurance is effective are covered, irrespective of date of origin of the ailment causing such disability. The insurance gives world-wide coverage, including air passenger coverage, and it carries a waiver of premiums after six months of continuous disability. The Executive is to be complimented for the care taken in selecting such an all-purpose insurance for its membership.

Dr. Pierre Jobin of the Faculty of Medicine of Laval University, Quebec City, spoke on modern trends in medical studies at a meeting of La Société Médicale de Montréal at Nôtre Dame Hospital on January 24. He particularly emphasized the prevalent views on the place of the basic sciences in the curricula of our medical schools.

A one-day conference on the place of hormones in medical treatment, sponsored jointly by the St. François d'Assise Hospital in Quebec and by Nordic Biochemicals Ltd., was held in Quebec on February 4. Some 200 doctors, pharmacists and senior medical students from the Eastern Quebec region attended. Dr. Maurice Comeau of the Institut Lavoisier, Montreal, spoke on asthma and Dr. G. Jasmin of the University of Montreal reported on experimental results with ACTH and cortisone. The two other visiting speakers, Dr. M. A. Ogryzlo of Sunnybrook Hospital, Toronto, and Dr. Donald Fraser of the Hospital for Sick Children, Toronto, spoke on rheumatoid arthritis and nephrosis, respectively.

Dr. Wilder G. Penfield of the Montreal Neurological Institute was asked to deliver the 1956 Louis Clark Vanuxem Lectures at Princeton University. This is one of the U.S.A.'s most distinguished lecture series in the field of science, established in 1912 by a bequest from Louis Clark Vanuxem, a Princeton graduate. Dr. Penfield spoke on February 13, 14 and 16, and devoted these lectures to the subject "Speech and the Cerebral Cortex".

The annual "clinical evening", put on by the Royal Victoria Hospital for the members of the Montreal Medico-Chirurgical Society, was held on February 3. Some 200 members and visitors were in attendance. Thirty-two separate exhibits illustrating various research and treatment projects of members of the medical staff were shown. The exhibits were shown in rooms on the third floor of the new wing, which afforded an opportunity for members to see some of the recent alterations, particularly the completely rebuilt main entrance to the hospital.

The Rehabilitation Institute of Montreal launched last month a building campaign to raise $3,100,000 for new quarters on Darlington Avenue. The Institute now rents temporary quarters at the Montreal Convalescent Hospital. A community is not complete until facilities are provided to train patients "to live and to work with what they have left". Montreal as a community has led the way in providing rehabilitation facilities for the disabled. The additional facilities are urgently needed to take care of the increasing number of disabled by injury and disease that are to be rehabilitated to normal life and work. It is felt that the community will readily respond to this appeal. A. H. NEUFELD

Dr. Phil Edwards of Montreal, well known for his outstanding achievements in track sports, has been elected to the Hall of Fame in Canadian sports. This is an honour accorded to Canadian athletes with a record of prominent performance in sport.

Dr. Edwards as a runner gained recognition for his fine track work while taking his medical degree at McGill, and was on the University track team from 1931 to 1936, being captain of the team in 1934. Many will remember his peculiarly graceful style of running which was so delightful to watch. He was also a member of three Olympic teams from Canada, and was captain of the Canadian Olympic team in 1936. He has the unusual record of winning three awards in 1936: that for outstanding Canadian athlete; for outstanding amateur or professional athlete; and the newspaper award by the combined Canadian newspaper sports writers for the most outstanding performance in sports for that year.

We would like to offer Dr. Edwards our congratulations for his well-earned distinctions. H.E.M.

CANADIAN ARMED FORCES

Brigadier K. A. Hunter, Director General of Medical Services (Army); Colonel C. G. Wood, Command Medical Officer, Prairie Command; and Colonel J. S. McCannel, Command Medical Officer, Western Command, attended a Civil Defence Health Services Conference at the Canadian Civil Defence College, Arnprior, Ontario, on January 23-25, 1956. Brigadier Hunter presented a paper on "The Role of the Medical Services of the Armed Forces in Civil Defence".

Captain F. R. Cassidy, R.C.A.M.C., left for Indo-China in January to replace Captain N. R. T. Fink, R.C.A.M.C., as a medical officer with the Military Component, Canadian Delegation, International Supervisory Commission, Indo-China. Captain Fink will take postgraduate training in internal medicine at Montreal Military Hospital, Queen Mary Veterans Hospital, Montreal, upon return to Canada.

Lt.-Colonel R. Feuiltault, officer in charge of medicine, Kingston Military Hospital, has been posted to Quebec Military Hospital as Commanding Officer and Medical Specialist. Quebec Military Hospital is a military wing of Ste. Foy Hospital, D.V.A., Quebec. Lt.-Colonel W. H. R. Croskery is now Medical Specialist at Kingston Military Hospital.

The Fifth Annual Conference of R.C.A.F. Staff Officers Medical Services was held at Air Force Headquarters, Ottawa, on February 27 and 28, 1956, under the chairmanship of Air Commodore A. A. G. Corbet, Director General of Medical Services (Air). The Conference was attended by Staff Officers Medical Services from all R.C.A.F. Command Headquarters, and the Commanding Officer of the Institute of Aviation Medicine, Toronto.

Air Commodore A. A. G. Corbet, Director General of Medical Services (Air), was one of the members of the Canadian party attending the Commonwealth Advisory Committee on Defence Science held in Canada during February.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

BOOK REVIEWS

MODERN NUTRITION IN HEALTH AND DISEASE. M. G. Wohl, Chief of Human Nutrition, Division of Biological Chemistry, Hahnemann Medical College and Hospital, Philadelphia, and R. S. Goodhart, Scientific Director, The National Vitamin Foundation, Inc., New York. 1,062 pp. Illust. Lea & Febiger, Philadelphia; The Macmillan Company of Canada Limited, Toronto, 1955. $18.50.

This is a good book, the combined effort of the editors and 53 other experts in various fields of nutrition, all resident in the U.S.A. It is similar in organization to Wohl's "Dietotherapy". To have compressed modern knowledge of nutrition into 1,002 pages is no mean achievement. The three main parts of the presentation are Normal Nutrition, Nutrition in Disease, and Nutrition in Periods of Physiologic Stress.

Ancel Keys writes an admirably balanced chapter on body weight, body composition and calorie status, and raises the question whether the elimination of gross overweight among Americans will by itself reduce adult mortality to the relatively favourable levels obtaining in the United Kingdom, The Netherlands, Italy and the Scandinavian countries. In his chapter on digestion, absorption and metabolism of protein, Ernest Geiger, in discussing dietary allowances, suggests that United States allowances are somewhat high for protein. In regard to the rather contentious subject of dietary standards, discussed by Robert S. Goodhart, one hopes that further work along the lines of the investigation of E. M. Widdowson and R. A. McCance on the growth of German children on vegetable diets will be undertaken on marginal populations in countries outside of North America. The German children appeared to grow well on only 8 g. of animal protein per day in addition to their diet from vegetable sources.

The contribution by H. D. Kruse on the cause and clinical recognition of malnutrition is definite and lucid, but its very clarity perhaps presents a picture which seldom exists in malnourished populations. Single vitamin deficiencies are rare and various deficiencies may produce similar physical signs. The manifestations of deficiency states are more often than not, non-specific and multiple. This should be stressed in a work of this nature.

The contribution by Barnett Sure on dietary interrelationships is important as indicating the endless complexity of the situation. For instance, decrease in the tissue content of ascorbic acid in calves is found when they are placed on a vitamin A deficient diet. Scurvy in rats may be produced by vitamin A deficiency but also by an excess of this vitamin. Of clinical importance is the fact that rancid fats destroy vitamin A. Hence the need for freshly prepared cod liver oil for children. Dietary deficiency diseases are not due to lack of one vitamin. Pellagra, for instance, is not merely due to a deficiency of niacin. There must also be a concomitant deficiency of animal protein, the other B vitamins, especially riboflavin and possibly thiamine, for its production. Of clinical importance also is the need for ascorbic acid as well as ferrous iron in the treatment of nutritional anæmia.

James Shaw contributes a sound chapter on nutrition in relation to dental medicine. Sticky carbohydrate foods still remain one of the important causes of dental caries. Emphasis is again rightly placed on the need for natural, unrefined foods in this synthetic age.

One of the most fascinating chapters in this book is that on antimetabolites by Thomas Jukes and Harry P. Broquist. For instance, there are antithiamine compounds like neopyrithiamine and an anti B_6 substance, 4-desoxypyridoxine, which can produce pyridoxine deficiency in humans. Antifolic acid compounds depress cytopoiesis and, one of them, aminopterin, has been used in the treatment of leukæmia with reasonable success. The purely scientific work of Hitchings and associates on analogues of purines and pyrimidines led to the development of Daraprim (pyrimethamine), a potent antimalarial drug. Another purine analogue recently prepared is 6-mercaptopurine, also being used in the treatment of leukæmia.

The various chapters on dietotherapy are excellent, ranging from Robert Kark's chapter on liver disease, of prime importance especially in Africa, and other areas of mass malnutrition, to Howard Odel's balanced review of nutrition in renal disease.

In nineteen pages I. S. Ravdin and H. A. Zintel give a sound conspectus of nutrition in the care of the surgical patient. It is perhaps not generally realized by surgeons that even in an appendectomy a patient may lose as much as 5 lb. in four or five days, and that hypoproteinæmia predisposes to poor wound healing. The point is also made that all surgical patients do not need intravenous administration of fluids. Whenever possible fluids should be taken orally. The dangers of excessive fluid and salt administration are emphasized, a fact at times not fully realized by enthusiastic interns.

A possible minor criticism of J. J. Stern's comprehensive chapter on nutrition in ophthalmology is that the multiple nature of deficiencies in man is not sufficiently stressed. For instance, in the section on vitamin A it is mentioned that keratomalacia was common among infants in Malaya before World War II due to the use of cheap condensed milk. During the Japanese occupation, when condensed milk was unobtainable, the infants were breast fed and keratomalacia almost disappeared. Now, with condensed milk available again the incidence of keratomalacia is once again on the increase. The point is that sweetened condensed milk is not only deficient in vitamin A, but, as commonly used, it would provide neither enough protein nor the other vitamins or minerals; so one cannot incriminate purely a lack of vitamin A.

In this section, as also in those on the clinical signs of malnutrition, the need for agreement on terminology is apparent. Bitôt's spots are a case in point. The reviewer spent many years looking for these spots in South African Bantu and other populations and found only two cases out of many thousands of children examined. Possibly there is some confusion in terminology or the condition is not common in South Africa.

L. Emmett Holt's chapter on nutrition in infancy and adolescence is a masterpiece of lucidity and condensation. It could be read with advantage by all concerned with the feeding of children, as it disposes adequately of various fads in infant feeding, a subject still somewhat beclouded by emotion, even among the medical and nursing professions.

The reviewer has touched only upon those chapters in this book which are of present interest to himself. It would be impossible to review the whole work in detail. Perhaps in the next edition a place might be found for a discussion of pathological effects of various food preservatives and additives, so common in this chemical age.

In the same way as 3:4 benzpyrene from our internal combustion engines and cigarettes is being incriminated as a cause of lung cancer, so also may our "homogenized, sterilized and vitaminized" foodstuffs be involved in causing or accentuating other neoplastic and metabolic diseases which are at present taking an increasing toll of life.

JOINT FAO/WHO EXPERT COMMITTEE ON NUTRITION. Fourth Report. World Health Organization Technical Report Series, No. 97. 61 pp. Published jointly by FAO and WHO, Geneva, 1955. $.60.

At its fourth meeting, the Joint FAO/WHO Expert Committee on Nutrition, after a review of and commentary on the present programmes of FAO and WHO, considered a number of specific problems in nutrition. It discussed the revision of the 1950 FAO report on caloric requirements, the requirements for protein with

special reference to feeding infants and children on protein-rich foods and the use of a vitamin-enriched dried skimmed milk in feeding. The experts recommended the calling of an international conference on food additives, a problem troubling many governments.

WHO is to be asked to prepare monographs on pellagra and endemic goitre and to call a meeting of expert on atherosclerosis (this has already been done).

BACKACHE IN WOMEN. E. Schleyer-Saunders. 80 pp. Illust. John Wright & Sons Ltd., Bristol; The Macmillan Company of Canada Limited, Toronto, 1955. $1.30.

Backache, like all Gaul, is usually divided into three parts—orthopædic, gynæcological, and urological—with no one part knowing what the other part doeth. As a result, since everybody's business is nobody's business, the unhappy woman suffering from it is unable to get from any one man a complete opinion on her ache. The gynæcologist, knowing his own field reasonably well, is inclined to say of all backache not strictly due to gynæcological causes that it is orthopædic, the orthopædist that it is gynæcological—and so on. This is doubly unfortunate since, at one time or other of her life, practically every woman suffers from backache. Some seem to have been born with it.

For these reasons a book like the present is doubly welcome—it does attempt to cover briefly the whole field, including the psychoneurotic (a most important one). In so far as the author handles the sphere of gynæcology, I find myself in almost complete agreement with him. He states the case fairly and reasonably and makes no ridiculous claims. He even deals reasonably—marvel of marvels—with the uncomplicated retroverted uterus. I can therefore wholeheartedly recommend the book to anyone wishing to glean a picture of gynæcological backache.

Being a gynæcologist, I cannot speak so readily about the other fields except to say that, where the author writes of matters about which I happen by chance to have some knowledge, his lore seems equally excellent. This book should prove of great value to the man in medical practice and to the medical student, and its price puts it within the competence of each. This price is about the equivalent of a trip to the movies (with a girl friend), and since a great many of the movies I see these days give me a pain somewhat lower down, this would seem a fair trade.

HEMORRHAGE OF LATE PREGNANCY. J. S. Fish, Instructor, Department of Obstetrics and Gynecology, Emory University School of Medicine, Atlanta, Georgia. 180 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1955. $6.00.

This 165-page book is a comprehensive study of the large experience of the author and his colleagues at Emory University in Georgia. While all causes of bleeding are discussed, main attention is devoted to the three major ones—abruptio placenta, placenta prævia, and rupture of the marginal sinus. These topics are considered in detail and are compared with one another under chapter headings: History, Clinical Characteristics, Clinical Diagnosis, Placental Diagnosis, and Treatment. That least well understood and most controversial member of the big three, rupture of the marginal sinus, is discussed at length and in a most authoritative fashion. Most of what is written will be accepted by the reader as a lucid presentation of current, generally accepted views. An exception to this is the author's support of Bartholomew's controversial claims regarding the intimate causative role of abruptio placenta in toxæmia. The book is adequately illustrated with pictures and diagrams of good quality.

Dr. Fish's book is highly recommended to all interested in the important obstetrical complication of hæmorrhage. It contains one of the best presentations on rupture of the marginal sinus yet published.

AN ATLAS OF REGIONAL DERMATOLOGY. G. H. Percival, Professor of Dermatology, and T. C. Dodds, Head of Photomicrography Unit, Department of Pathology, University of Edinburgh, Scotland. 264 pp. Illust. E. & S. Livingstone Limited, Edinburgh and London; The Macmillan Company of Canada Limited, Toronto, 1955. $17.00.

Several atlases of dermatology have appeared recently in different languages, proving that this form of publication is becoming more and more popular as an aid to the diagnosis of skin diseases. The present atlas of regional dermatology is more compact than most of the others, the illustrations being of a smaller format, which is inadequate for the details of generalized dermatoses. A welcome feature is the fact that some of the common disorders are shown in a series of pictures, enabling the reader to compare the onset with the fully developed stages. The illustrations are well chosen, the colours clear, and the short texts easily understood. As the authors point out in their preface, the regional arrangement of the atlas involves some duplication of illustrations, especially when common and extensive conditions are described.

This atlas will be used with profit by students and general practitioners, who will find it helpful in the diagnosis of some of the common problems in office practice.

MODERN ACTINOTHERAPY, A REVIEW OF THE LITERATURE. R. H. Beckett, King Edward VII Hospital, Windsor, England. 161 pp. Illust. William Heinemann, London, 1955. 17/6.

This is a small book of 161 pages on the therapeutic use of ultra-violet and infra-red radiations. There are 24 illustrations, of which five are in colour. It begins with an historical survey of actinotherapy, and goes on to deal with the physical and physiological basis of this type of treatment. Sections on the use of ultra-violet radiations in dermatology, rheumatology, pædiatrics, tuberculosis, and miscellaneous conditions are included. Indications and technique are given for a variety of conditions; some of these are controversial. There is also a chapter dealing with the use of ultra-violet radiations in diagnosis.

Physiatrists and physical therapists will find this book interesting and of value. Clinicians will find something of interest in the sections dealing with their particular specialty.

INTRODUCTION TO VIROLOGY. G. Dalldorf, Director, Division of Laboratories and Research, New York State Department of Health, Albany, New York. 102 pp. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1955. $3.75.

This small monograph of 101 pages is a mine of information on the many practical aspects of human virology of current interest. The chapter on poliomyelitis viruses and their cousins, the Coxsackie viruses, is well written, informative and authoritative. Likewise Dr. Dalldorf presents in a readable form chapters on the poxes and the rashes, virus disease of the liver, the respiratory tract, virus encephalitis and meningitis, virus infection of the skin and brain, and rabies. Special emphasis has been put on the clinico-pathological features and epidemiological aspects of these diseases, and the current state of knowledge regarding each condition is admirably summarized. Two chapters are devoted to a description of laboratory facilities and equipment as well as the commoner methods employed in virus diagnostic procedures. This little book not only should be read by practitioners and students of medicine but also contains much data which should stimulate the interest of the expert.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

CONNECTIVE TISSUES. Transactions of the Fifth Conference, February 8, 9, and 10, 1954. Edited by C. Ragan, Associate Professor of Medicine, Columbia University College of Physicians and Surgeons, New York, N.Y. 222 pp. Illust. The Josiah Macy Jr. Foundation, New York, 1954. $4.25.

This book is a record of a series of informal discussions between outstanding research workers on connective tissues. The topics discussed are: *Exchanges Between Blood and Lymph.* Extensive microscopic studies are the basis for the observations on this topic. The importance of extracellular elements in the exchange of materials between blood and tissues is presented, and the striking differences in fundamental properties of capillary and lymphatic endothelium are shown. The action of heparin is of extreme interest, as it abolishes leukocytic response to microtrauma. *Interstitial Water and Connective Tissues.* In contrast to the previous work, this investigation is on a macroscopic level and deals with precise estimation of total body water and its subdivisions in the different compartments. Water is the main chemical component of the body, comprising 70% of its lean mass, and is generally divided into two main portions, intracellular and extracellular (intravascular and interstitial).

The various techniques of measuring extracellular fluid volume are discussed. Once this is done and the total body water is known, intracellular water volume may be measured. Further calculations allow accurate measurement of chloride, sodium and potassium. *Hormonal Effects on Connective Tissues.* The effect of cortisone on connective tissues has been of extreme interest and significance. The ground substance of connective tissue contains acid mucopolysaccharides, hyaluronic acid, and chrondroitin sulphuric acid, and the behaviour of these substances in cortisone-treated tissues was studied, the observations being extended to the action of the mast cells and then to the muscles. The findings indicate that cortisone and hydrocortisone inhibit new formation of connective tissue. The influence of adrenal steroids on the mast cells may be a most significant process.

A study such as this is of vital interest to histologists, biochemists, and all doing research in this field.

OPHTHALMOLOGY. A Textbook for Diploma Students. P. D. Trevor-Roper, Curator, Department of Pathology, The Institute of Ophthalmology, London. 656 pp. Illust. The Year Book Publishers, Inc., Chicago, 1955. $15.00.

Here is a compact text designed to cover the needs of the postgraduate student working towards a specialist diploma in ophthalmology. The book is worthy of recommendation because it comes close to accomplishing its intended aim. In 637 pages it does give, succinctly, the essential features of the study and practice of ophthalmology. References to the literature have been eliminated, only basic concepts are given, and prominent theories are accepted. By carefully choosing what may be considered fundamental points the author has brought together a worthy book.

The text is divided into five sections: anatomy, physiology, optics, diseases of the outer eye and diseases of the inner eye. The sections on physiology and optics are particularly worth comment. A surprisingly adequate description of the physiology of the eye is presented in the 90 pages which are allotted to that subject. Controversial subjects, such as aqueous formation, are discussed in a manner which will give the student some idea of the present level of knowledge on the subject and direction of research. It would not be possible from this book to learn to refract, but there is enough information to allow the student to understand the action of lenses, the significance of a refractive error, and how an error can be corrected.

The sections on diseases of the outer and inner eye are well organized. One noteworthy feature is that the descriptions of the diseases and of the treatments are up to date. Many old concepts of etiology and forms of treatment have been omitted. The resulting descriptions of diseases in these two chapters are short, full of good points and without padding.

In a few places Trevor-Roper has been slightly facetious in his writing. However, this does not detract from the fact that this textbook comes as close as any known to the reviewer to covering the whole field of ophthalmology in a single, small volume. The style is crisp, almost abbreviated, but not tiring. The logic is good, the organization is excellent, the divisions and headings are clear and significant. It is a firmly bound book on good paper with clear print. There are eight colour plates and many black and white half-tone or line drawings which adequately illustrate the text. The index is satisfactory.

THE WORK OF THE MENTAL NURSE. A survey organized by a Joint Committee of the Manchester Regional Hospital Board and the University of Manchester, England. 154 pp. Manchester University Press, Manchester 13, 1955. 10/- net.

No one can now feel that we are wholly indifferent to the problem of nursing the mentally ill. This excellent book is a further example of growing interest and concern. To those who are historically minded however, it is sad to think that what could have been solved once and for all 100 years ago is still a matter of dispute and puzzlement. Conolly at Hanwell in the 1840's had a training scheme prepared for mental hospital attendants 20 years before Florence Nightingale started her school of nursing at St. Thomas's Hospital. Yet psychiatric nursing has never achieved the status or prestige of general nursing, just as psychiatric hospitals have generally lagged far behind general hospitals in buildings, equipment and public esteem.

The Manchester Mental Nursing Survey was directed by Mr. H. C. Goddard whose *Work of Nurses in Hospital Wards* was one of the Nuffield Foundation's many valuable contributions to medicine. The survey was undertaken at the request of the Regional Hospital Board and Manchester University in the hope that something could be done about the shortage of nurses for cases of mental deficiency and mental disease. As one would expect, it was a very sensible piece of work. He condemns the very long day worked in these hospitals and points out that this produces too much fatigue and disturbs the nurses' social life. He has excellent recommendations for making a clearer division between trained psychiatric nurses, assistant nurses, and domestic help. These are of local importance. What is of more general importance is that the survey strongly criticizes the British attempt to fit psychiatric nursing into the mould of general nursing. Because of this, psychiatric nurses have to take an examination that has little or no bearing on the work that they do.

The reviewer would have printed in red on all agenda for the training and recruiting of psychiatric nurses this striking and timely sentence, "Mental nursing is such an important subject in its own right that it demands a scheme of training formulated expressly for its own purpose; if it is coupled with general training it may gain a certain amount of prestige but it still remains very much the poor relation."

This report must be read by all those connected with mental hospitals, and nursing authorities would do well to read it too. A scheme of training formulated expressly for those who nurse the mentally ill and mental defectives is long overdue. We have the knowledge available and what we now require is the energy and drive to put it to good use. The Manchester Mental Nursing Survey shows up well and clearly some of our grievous shortcomings.

Canad. M. A. J.
Mar. 15, 1956, vol. 74

DEXTRAN, ITS PROPERTIES AND USE IN MEDICINE. J. R. Squire, Leith Professor of Experimental Pathology, University of Birmingham, J. P. Bull, Director, Medical Research Council Industrial Injuries and Burns Research Unit, Birmingham Accident Hospital, W. d'A. Maycock, Lister Institute of Preventive Medicine, Elstree, and C. R. Ricketts, Member of Scientific Staff, Medical Research Council, University Research Fellow, University of Birmingham, England. 91 pp. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1955. $3.50.

This monograph is timely in view of the recent availability of dextran for clinical use in this country. Voluminous reports on this, the most recent of plasma volume expanders, have made it virtually impossible for the practising physician to "keep pace". This book succeeds in filtering the literature to 1955, and coupled with the author's own studies presents a very readable treatise on dextran. A brief review of the "positive" and "negative" qualities desirable in plasma substitutes is first presented. The remainder of the book deals specifically with dextran. The chemistry is fully outlined, perhaps more fully than many clinicians will pursue. The behaviour of dextran in the body and its clinical uses are then discussed. The variation in the different preparations of dextran is stressed; this helps explain some divergent reports. The discussion of experimental uses of dextran, particularly in the study of natural membranes, is most interesting and provocative.

HYPOTHERMIC ANESTHESIA. R. W. Virtue, Associate Professor and Head of the Division of Anesthesiology, University of Colorado School of Medicine, Denver. 62 pp. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1955. $2.75.

This monograph is a very timely summary of the literature on physiology, animal research and clinical experiences in hypothermia to date. In addition, the author gives an outline of the clinical procedures at the University of Colorado. Dr. Virtue, working as anæsthesiologist with Dr. Henry Swan, has been in the foreground of workers in the field of hypothermia for surgery and writes with authority on a subject which requires so much further investigation.

The six-page list of references in itself makes this a valuable little book for those interested in the subject.

SALIVARY GLAND TUMORS. D. E. Ross, Chief Surgeon, Ross-Loos Medical Group, Los Angeles, California. 86 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1955. $8.25.

This book should be a welcome addition to the library of any surgeon. The author has covered the subject carefully, adding to a widespread review of the literature his own personal material.

The pathology of these tumours is described in considerable detail; the importance is pointed out of a knowledge of gross pathology in deciding on the surgery to be undertaken when the tumour is first encountered.

The chapters on anatomy and surgical technique are particularly interesting and well illustrated and should be of practical value in dealing with parotid tumours. Should fistula or facial paralysis occur, the author explains the various methods of dealing with these complications.

AMPUTEES AND PROSTHESES, REPORT OF A CONFERENCE ON PROSTHETICS. World Health Organization, Technical Report Series, No. 100. Palais des Nations, Geneva.

The World Health Organization held a conference on prosthetics in Copenhagen in August 1954, and has now published a report of the proceedings. The expert group, which included two members from the U.S.A., five from Europe and two from Asia, commented on the incidence, causation and prevention of amputation, and then discussed basic principles and practices for the rehabilitation of the amputee.

In their remarks on surgical treatment, they drew attention to the disadvantage of laying down too rigid a scale of stump lengths, and noted certain trends in technique. For example, amputation through the wrist and knee, and the Syme amputation, are returning to favour. Stress was laid on both psychological and physical treatment for the amputee. The psychological approach should begin before the amputation. Vocational guidance and the essentials of a limb-fitting centre were discussed, the basic principles of simplified artificial limbs being also considered.

The report ends with suggestions for research, including studies of stability and adjustability of artificial knee-joints, and of production of a simple but efficient elbow mechanism; the principal problems for international action are also set out.

TRANSACTIONS OF THE 14th CONFERENCE ON THE CHEMOTHERAPY OF TUBERCULOSIS. 556 pp. Illust. Prepared and edited by the Veterans Administration Area Medical Office, Atlanta, Georgia, and the Department of Medicine and Surgery, Central Office, Washington, D.C. 556 pp. Illust.

The Transactions of the 14th Conference on the Chemotherapy of Tuberculosis held by the United States Veterans Administration contain a great deal of material on new and recent drugs. Probably the most interesting of these is cycloserine whose effects are discussed in three papers. The older methods of treatment are discussed under three headings: pulmonary tuberculosis, extra-pulmonary tuberculosis, and surgical.

In spite of the title of the Conference, there is a considerable amount of material on surgical treatment and on various aspects of pathology and bacteriology. There is also a special section on laboratory medicine. The volume concludes with reports of the various committees and their recommendations.

NO Gastric Irritation with this Oral Analgesic

Really palatable

No water, no chewing necessary

PAYNOCIL

T. M. REG'D.

Paynocil represents a considerable advance in new oral analgesics combining Acetylsalicylic Acid and Amino-Acetic Acid.

- Paynocil does not cause gastric irritation.
- Paynocil provides the most palatable and convenient form of analgesic medication yet developed.
- Paynocil disintegrates pleasantly and rapidly on the tongue. Swallowing with water or chewing are unnecessary.
- Paynocil provides in each tablet an effective dose (10 grains) of Acetylsalicylic Acid.

Each scored tablet contains: Acetylsalicylic Acid — 10 grains (0.65 gramme), Amino-Acetic Acid — 5 grains (0.32 gramme)

(Samples and Professional Literature on Request)

C. L. BENCARD, P.O. BOX 99, WESTON, ONTARIO

Canad. M. A. J.
Mar. 15, 1956, vol. 74

THE PRACTICE OF DYNAMIC PSYCHIATRY. J. H. Masserman, Professor of Neurology and Psychiatry, Northwestern University, Chicago, Illinois. 790 pp. Illust. W. B. Saunders Company, Philadelphia and London, 1955. $12.00.

Nearly 10 years ago Dr. Masserman of Chicago published a book entitled *Principles of Dynamic Psychiatry* in which he expounded his concepts of physiological and psychological aspects of behaviour. The present work stems from this but is mainly devoted to practical applications of the author's concepts. He begins with a discussion of the rationale, objectives and methods of the psychiatric interview, continues with a description of various syndromes of behaviour disorder and then considers the relations of the psychiatrist to referring physicians, non-medical personnel and certain special associates such as jurists and insurers. He then gives a brief outline of certain theoretical concepts—of self and the universe, on sexual behaviour, on suicide. The main portion of the book is, however, devoted to psychotherapy, the technique being described in great detail with full discussion of initial interviews, the strategy of therapy, the tactics of therapy and adjuncts to psychotherapy such as drug narcosis and hypnosis. This is essentially an exposition of a personal technique of psychotherapy, full of detail and at times a little difficult to read. It is very fully illustrated by case reports.

LEGISLATION AFFECTING PSYCHIATRIC TREATMENT. Fourth Report of the Expert Committee on Mental Health. Technical Report Series No. 98. World Health Organization, Palais des Nations, Geneva, 1955. $0.30.

At its fourth meeting, the expert committee on mental health of the World Health Organization discussed legislation affecting psychiatric treatment. The Section of Mental Health of WHO had previously compiled from information received from governments a comparative survey of the state of legislation in various countries, and has indeed since then published this study as a monograph. The expert committee first noted the changing attitude of society towards the mental patient and stressed the desirability of gradually transferring the responsibility for taking steps to deal with mentally unsound patients from the judicial authority to the health authority. The aim of health and social measures should be not segregation, but to give everyone a place in society corresponding to his needs and abilities.

The committee found that existing legislation was mostly unsatisfactory, and based on outmoded concepts. Purely legal considerations are given too much weight and medical considerations too little. Provision for voluntary hospitalization and for the mentally subnormal is often woefully inadequate, while discharge is commonly more difficult to secure than admission. The law is often used as a substitute for services which administrative authorities should be carrying out, and does little to foster a positive approach for recruitment and training of specialist professional staff. Good psychiatrists without specialist hospitals can do more good than psychiatric hospitals with poor staff. A community psychiatric service should be set up.

The committee deplored separation of patients into "acute" and "chronic" or "curable" and "incurable", believing that all patients need treatment. In raising the standards of establishments, three factors are important: adequate numbers of medical and nursing personnel, absence of overcrowding, and technical facilities permitting abolition of mechanical restraint.

The problem of the unwilling patient was discussed, the committee observing that the more adequate a psychiatric service, the less need there would be for compulsion. It also discussed in detail the central and local organization of a psychiatric service and the principles of legislation. This most informative report is highly recommended to physicians and legislators.

Books Received

Books are acknowledged as received, but in some cases reviews will also be made in later issues.

The Role of Algæ and Plankton in Medicine. M. Schwimmer, Clinical Assistant in Medicine, and D. Schwimmer, Assistant Professor of Medicine, The New York Medical College, Metropolitan Medical Center, New York. 85 pp. Grune and Stratton Inc., New York, 1955. $3.75.

Vascular Surgery in World War II. D. C. Elkin, Professor of Surgery, Emory University, Georgia, and M. E. DeBakey, Professor of Surgery, Baylor University College of Medicine, Houston, Texas. 495 pp. Illust. Office of the Surgeon General, Department of the Army, Washington, D.C., 1955. $4.25.

Voice and Speech Patterns of the Hard of Hearing. J. P. Penn. 69 pp. Acta Oto-Laryngologica, Stockholm, Sweden, 1955.

Joint FAO/WHO Expert Committee on Meat Hygiene. World Health Organization Technical Report Series, No. 99. World Health Organization, Palais des Nations, Geneva, 1955. $.60.

Modern Actinotherapy. R. H. Beckett, King Edward VII Hospital, Windsor, England. 161 pp. Illust. William Heinemann, Ltd., London; British Book Service (Canada) Ltd., Toronto, 1955. $3.00.

Psychosomatics. M. Hamilton, Senior Lecturer in Psychiatry, Leeds University, England. 225 pp. Illust. Chapman & Hall Limited, London; British Book Service (Canada) Limited, Toronto, 1955. $3.60.

Diseases of the Nose and Throat. St.C. Thomson, Emeritus Professor of Laryngology, and V. E. Negus, Consulting Surgeon for Diseases of the Ear, Nose and Throat, King's College Hospital, London. 1,040 pp. Illust. Cassell & Company Limited, London; British Book Service (Canada) Limited, Toronto, 1955. $15.40.

Modern Methods of Feeding in Infancy and Childhood. D. Paterson, Consulting Physician to Westminster Hospital, and G. H. Newns, Physician to the Hospital for Sick Children, London. 188 pp. Illust. Constable & Company, Limited, London, 1955. 15/-.

Symposium on Myasthenia Gravis. H. R. Viets and G. D. Gammon. 86 pp. Illust. Reprinted from the American Journal of Medicine, New York, 1955.

Grundriss und Atlas der Gynakologischen Cytodiagnostik. (Compendium and Atlas of Gynæcological Cytodiagnosis). H. Smolka, Physician to the Gynecology Clinic, Kiel University, and H. J. Soost, Rendsburg, Germany. 166 pp. Illust. Georg Thieme, Stuttgart; Intercontinental Medical Book Corporation, New York, 1955. $28.55.

Androgens: Biochemistry, Physiology and Clinical Significence. R. I. Dorfman, Research Professor, Boston University School of Medicine, Massachusetts, and R. A. Shipley, Director, Radioisotope Unit, Veterans Administration Hospital. 590 pp. Illust. John Wiley & Sons, Inc., New York, 1956. $13.50.

Pathologic Physiology. W. A. Sodeman, Professor of Medicine, University of Missouri, Columbia, Mo. 963 pp. Illust. 2nd ed. W. B. Saunders Company, Philadelphia, 1956.

Atlas of Rush Pin Technics. L. V. Rush, Department of Surgery, Rush Memorial Hospital, Meridian, Mississippi. 227 pp. Illust. The Berivon Company, Meridian, Mississippi, 1955.

Cancer of the Lung, Pathology, Diagnosis and Treatment. M. B. Rosenblatt, Associate Professor of Medicine, New York Medical College, and J. R. Lisa, Director, Pathology Service, New York City Department of Hospitals, New York. 330 pp. Illust. Oxford University Press, New York, 1956. $15.75.

Personality Changes Following Frontal Leucotomy. P. M. Tow, Research Physician in the Department of Clinical Research, Runwell Hospital, Essex, England. 262 pp. Illust. Oxford University Press, London, New York, Toronto, 1955. $5.25.

Psychiatric Research Reports. Edited by J. S. Gottlieb and others. 176 pp. The American Psychiatric Association, Washington, D.C., 1955. $2.00.

Handbook of Toxicology. Vol. I, Acute Toxicities. Edited by W. S. Spector. 408 pp. W. B. Saunders Company, Philadelphia, 1956.

Neural Control of the Pituitary Gland. G. W. Harris, Fitzmary Professor of Physiology, Institute of Psychiatry, Maudsley Hospital, London. 298 pp. Illust. Edward Arnold Ltd., London; The Macmillan Company of Canada Ltd., Toronto, 1955. $5.00.

An Introduction to Pool Exercises. E. Bolton and D. Goodwin. 49 pp. Illust. E. & S. Livingstone Ltd., Edinburgh and London; The Macmillan Company of Canada Limited, Toronto, 1956.

A Textbook of Pharmacognosy. N. M. Ferguson, Dean of the College of Pharmacy, University of Houston, Texas. 374 pp. The Macmillan Company, New York and Toronto, 1956. $7.00.

Modern Public Health for Medical Students. I. G. Davies, Professor of Public Health and Preventive Medicine, University of Leeds, England. 487 pp. Edward Arnold Ltd., London; The Macmillan Company of Canada Limited, Toronto, 1955.

Impartial Medical Testimony. A report by a special committee of the Association of the Bar of the City of New York, on the Medical Expert Testimony Project. 188 pp. The Macmillan Company, New York and Toronto, 1956. $3.95.

Thalium Poisoning. J. J. Prick, Professor of Neurology, Nijmegen University; W. G. S. Smitt, Professor of Neurology, Utrecht University; L. Muller, Industrial Physician, Enschede, The Netherlands, 155 pp. Illust. Elsevier Publishing Company, Amsterdam; Burns & MacEachern, Toronto, 1955. $3.95.

The Use of Gamma Globulins in Pediatrics. A. Tiselius, Professor, Institute of Biochemistry, Stockholm. 298 pp. Illust. Masson et Cie., Paris, 1955. 2,000 Fr. fr.

Ionography. H. J. MacDonald, Professor of Biochemistry, Loyola University, Chicago. 268 pp. Illust. The Year Book Publishers Inc., Chicago; Burns & MacEachern, Toronto, 1955. $6.50.

Royal Air Force Medical Services, Vol. II. Edited by S. C. Rexford-Welch, Squadron Leader, R.A.F. 703 pp. Illust. H.M. Stationery Office, London, 1955. 75/-.

Eleventh Report of the Department of Health, Province of Quebec, for the year 1954.

The Biliary Tract. J. A. Sterling, Staff Surgeon, Albert Einstein Medical Center, Philadelphia, Pa. 424 pp. Illust. The Williams and Wilkins Company, Baltimore; Burns & MacEachern, Toronto, 1955. $10.00.

JOURNAL OF

Canadian Medical Association

Editorial Office—150 St. George St., Toronto 5

General Secretary's Office—150 St. George St., Toronto 5

SUBSCRIPTION RATES

The Journal is supplied to paid-up members of the Canadian Medical Association as a perquisite of membership. Medical libraries, hospitals, and individuals may subscribe to the Journal at $12.00 a year, payable in advance. There is a special rate for medical students residing in Canada of $2.50 a year. Subscriptions and all relative correspondence should be addressed to the office of the Managing Editor at 150 St. George Street, Toronto 5, Ontario.

INSTRUCTIONS TO CONTRIBUTORS

Manuscripts: Manuscripts of original articles, case reports, clinical and laboratory notes, and special articles should be submitted to the Editor at the C.M.A.J. editorial office, 150 St. George St., Toronto, with a covering letter requesting consideration for publication in the *Journal*. Acceptance is subject to the understanding that they are submitted solely to this *Journal*, and will not be reprinted without the consent of both the Editor and the author. Articles should be typed on one side only of unruled paper, double-spaced and with wide margins. Carbon copies cannot be accepted. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

The Editor reserves the right to make the usual editorial changes in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to *Journal* style. In no case will major changes be made without prior consultation with the author. Authors will receive galley proofs of articles before publication, and are asked to confine alterations of such proofs to a minimum.

Reprints may be ordered on a form supplied with galley proofs.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen, and should set out references in a numbered list at the end of the article, thus:

1. DOAKES, J.: *M. J. Kamchatka*, 1: 2, 1955, giving in order: (1) Author's name and initials in capitals. Where more than three authors are concerned in an article, only the first should be named, with *et al.* as reference to the others. (2) Cumulative Index Medicus abbreviation of journal name. (3) Volume number. (4) Page number. (5) Year.

References to books should be set out as follows:

PICKWICK, S., *Textbook of Medicine*, Jones and Jones, London, 1st ed., p. 30, 1955.

Illustrations: Photographs should be glossy prints, unmounted and untrimmed, preferably not larger than 10 by 8 inches. Colour work can be published only at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. Identification can be made by pasting an identifying legend on the back. Patients must not be recognizable in illustrations, unless the written consent of the subject to publication has been obtained. Graphs and diagrams should be drawn in india ink on suitable white paper. Legends to all illustrations should be typed separately from the text of the article. Illustrations should not be rolled or folded.

CLASSIFIED ADVERTISEMENTS

Please send copy to Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

Rates: $5.00 for each insertion of 40 words or less, additional words 10c each.

If a box number is requested, there will be an additional charge of 50c on the first advertisement to cover postage and handling charges.

Miscellaneous

NOTICE.—Going overseas this year? You can save money by buying your foreign currency requirements in Canada before your departure. Rates are even more favourable now than later in the travelling season. Free information from Deak & Co., Inc., Foreign Exchange brokers, 77 Adelaide Street West, Toronto. Telephone EMpire 6-4461.

MICROSCOPES OF ALL TYPES expertly repaired and overhauled. Pick up and delivery in metropolitan Toronto area. Out of town repairs accepted. Microscopes returned within 7 days. For further information write Box 638, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

Office Space

DOCTOR'S OFFICE SPACE FOR RENT.—Suite finished according to tenant's specifications. South-west corner of Yonge and Jane. Reply to Mrs. A. Stephens, Thornhill Post Office, Toronto, Ontario.

MODERN MEDICAL OFFICES FOR RENT.—Large parking facilities. 288 St. Clair Avenue West, Toronto, Ontario. Telephone WAlnut 1 - 6614.

OFFICE SPACE FOR RENT.—Ville St. Laurent, Montreal suburb. Approximately 600 feet, modern new building, first floor, doctors and dentists only. Reasonable rent. Best location in St. Laurent. Population approximately 40,000, half are children under sixteen years of age. Dec-Mac Corporation, 1470 Peel Street, Montreal, Quebec.

FOR RENT.—Office space in excellent location in Oshawa, Ontario. Building being completely renovated. Suites will be arranged to suit tenants. Suitable for specialists or general practitioners. Apply to Dr. E. Glazier, 105 Simcoe Street South, Oshawa, Ontario.

Positions Vacant

RADIOLOGIST.—Fully equipped office available. Nearly new, excellent equipment (150 M.A.) in full operation. In one of the best locations in Toronto. For rent or sale. Telephone WAlnut 3 - 0997.

TRAVELLING MEDICAL EXAMINER required in near future by Canadian National Railways. Work requires appointee to travel between various railway divisional points and perform periodic medical examination of employees in train operation. Good living quarters on business car for doctor and wife. Reply to Dr. K. E. Dowd, Chief Medical Officer, Canadian National Railways, 890 Notre Dame Street West, Montreal, Quebec.

ASSISTANT REQUIRED for general practice group in Southwestern Ontario. Prospect of partnership. Married man preferred. State qualifications, age and religion. Reply to Box 656, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED—ASSOCIATE PATHOLOGIST.—Certified or eligible for St. Lawrence County, New York State. Salary $12,500-$15,000, depending on experience. United States citizenship not required; eligibility for New York State license necssary. Write Dr. Robert T. Rogers, Director, St. Lawrence County Laboratories, Canton, New York.

TWO ASSISTANTS in general practice required for Northern Ontario clinic, beginning July 1, 1956. Reply to Box 584, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED FOR GENERAL PRACTICE.—Qualified general practitioner with special interest in obstetrics and pædiatrics. Only those seeking permanent position need apply. Remuneration commensurate with training and ability. Apply Box 617, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

CERTIFIED OBSTETRICIAN wanted for group practice in Western Ontario town. Permanent position if satisfactory. Reply giving references and stating salary expected to Box 596, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

RADIOLOGIST WANTED for 60-bed general-public hospital, within one hour of metropolitan Toronto. Send full particulars, remuneration required, etc., to Box 618, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

POSITIONS VACANT.—Resident and senior assistant residents in medicine appointments, University Alberta Hospital, Edmonton, Alberta, commencing July 1, 1956. Apply to Assistant Medical Superintendent.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF ALBERTA HOSPITAL.—Fellowships in medicine and surgery. Two fellowships in the department of medicine and one in the department of surgery are open to suitably qualified postgraduate students wishing to take one year in clinical investigation. Salary $3,000 per annum. Applicants interested in these posts should apply to Dr. A. C. McGugan, Superintendent of the University of Alberta Hospital, Edmonton, Alberta, with a curriculum vitæ and two letters of reference. Further details will be supplied to interested candidates.

GENERAL PRACTICE RESIDENTS.—FOR FULLY APPROVED AND ACCREDITED 125-BED GENERAL HOSPITAL WITH LARGE OUT-PATIENT CLINIC. ACTIVE TEACHING PROGRAMME BY STAFF OF CERTIFIED SPECIALISTS. GUARANTEED PRACTICE OPPORTUNITY ON COMPLETION OF TRAINING. SALARY $5,000 PER YEAR. CONTACT: DIRECTOR OF MEDICAL EDUCATION, THE LYNN HOSPITAL, DETROIT 17, MICHIGAN, U.S.A.

WANTED.—An assistant with a view to partnership for a busy general practitioner in a Western Ontario town, with own hospital facilities. Opportunity to net at least $10,000 the first year. Please reply stating age, experience, marital status and religion to Box 621, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED.—Internist with fellowship for progressive Ontario clinic. Reply stating age, previous experience in practice, and salary expected. Box 586, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED.—Young general practitioner for small group in mid-western Canadian city. Salary dependent on qualifications. Eventual partnership anticipated. Reply to Box 575, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED BY GROUP in Central Ontario, recent graduate with one year's internship who wishes employment for one year before specializing. Adequate remuneration, car allowance, rotating duty schedule, etc. Apply giving pertinent information to Box 595, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED: ANÆSTHETIST.—Well established group in central Ontario requires services of certified anæsthetist. Write stating remuneration requirements, experience and refernces to Box 562, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

INTERNIST WANTED with certification or fellowship for an expanding group practice in Ontario. Some experience in neurology and/or psychiatry would be helpful. Apply stating experience, qualifications, starting salary expected, and include a recent snapshot if possible. Box 585, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED.—Urologist with certification or fellowship for a group in Ontario. Apply stating experience, qualifications, starting salary expected, and include a recent snapshot if possible. Box 540, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

ASSISTANT required for busy general practitioner in suburban Toronto area. Opportunity for partnership. Please write giving age, experience and religion to Box 466, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED.—Assistant in busy general practice in English-speaking Montreal suburb; beginning summer 1956; prospect for partnership. State age, qualifications, race, religion and special interests. Box 508, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

POSITION VACANT.—A vacancy exists on the active staff of this English-speaking general hospital for a doctor with certification in E.N.T. or E.E.N.T. to take charge of the department. All tonsillectomies referred to the E.N.T. department. A new hospital on a new site is under construction for completion in 1956. For further details apply to: Administrator, Jeffery Hale's Hospital, Quebec City, P.Q.

JUNIOR FELLOW IN NEUROPATHOLOGY; vacancy July 1; salary $1,500; tenure 1 year. Communicate with Dr. Eric A. Linell, Professor of Neuropathology, University of Toronto, Toronto, Ontario.

DOCTOR WANTED for general practice in northern Saskatchewan. Combined office and modern residence for rent. Well-equipped 23-bed hospital. Gravelled highway. Gross income $18,500. Doctor's equipment and furniture may be purchased on easy terms. Reply to Secretary-Manager, Spiritwood Union Hospital, Spiritwood, Saskatchewan.

WELL-ESTABLISHED, medium-sized group in Nelson, B.C. requires a general practitioner from June 1956 for two years. Experience in anæsthesia essential. Eventual permanent association a possibility. Please apply to the President of the Medical Associate Clinic, 405 Hendryx Street, Nelson, B.C.

WANTED.—A young internist with certification in internal medicine, preferably with practical experience, for a salaried position with a clinic group. Please state qualifications, age, marital status, and enclose a snapshot. Full information will be supplied on reply to Box 650, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

(Continued on page 34)

CLASSIFIED ADVERTISEMENTS

WE HAVE AN EXCELLENT OPPORTUNITY for a general practitioner, preferably not over 45 years. One who has had a few years in his own practice. Very attractive offer of partnership to the right man. Pleasant working conditions with time off and pension plan. Please reply to Box 648, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

GIRLS' PRIVATE SUMMER CAMP located near Kingston, Ontario, requires graduate medical doctor—preferably female—to supervise health programme for July and/or August. Contact Mr. or Mrs. C. Labbett, 3 Pinedale Crescent, Toronto 12, Ontario. HUdson 9-1032.

ASSISTANT REQUIRED (female preferred) for busy general practice 10 miles west of Toronto commencing between July and October 1956. Write giving age and experience. Permanent position in pleasant suburban district with hospital facilities available. Box 642, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

POSITION VACANT.—Canadian trained general surgeon to participate in general practice including obstetrics, for Saskatchewan city. Salary $9,000 per annum. Partnership second year. Available not later than June 1, 1956. Reply to Box 634, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED.—General practitioner for group practice in City of North Bay, Ontario. Two fully accredited hospitals. Excellent opportunity for a doctor who wishes experience and is not afraid of work. For information, please contact Doctors Crowe and Jackson, Box 61, North Bay, Ontario.

AVAILABLE: ASSISTANTSHIP for large medical and surgical practice with general practitioner in Southern Ontario. Good hospital, good wages, and liberal car allowance. Varied and full general practice. Young Canadian graduate preferred. The above position open immediately for terms of one month up to an indefinite period. Similar position for one year or longer available July 1st. Apply Box 614, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

Positions Wanted

WANTED.—Partnership or assistantship in general practice, by European graduate (Amsterdam) 1952, age 32, single. Completing senior intern year June; writing L.M.C.C. April. Interested particularly in obstetrics-gynæcology and pædiatrics. Prefer British Columbia or Alberta. Available July 1956. Reply to Box 659, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

CERTIFIED INTERNIST, English, age 31, M.D., M.R.C.P. (London), with 7 years' postgraduate experience, seeks practice in association, or with group anywhere in Canada. Available May or later. Reply with full particulars to Box 655, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

AMERICAN GRADUATE, 34, L.M.C.C., 3 years' approved residency in surgery completed, at present attending the Graduate School of the University of Pennsylvania, desires preceptorship appointment with Fellow of the College of Surgeons to complete board requirements. Reply to Box 654, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED.—Recent Canadian graduate with two years' postgraduate medicine desires practice either with a group, an experienced practitioner, or will take over from an M.D. leaving a practice. Preferably in Ontario or the Maritimes. Married. Protestant. Reply to Box 608, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

ENGLISH SURGEON, F.R.C.S., L.M.C.C., late colonial medical service, age 43, single; wide experience in general and traumatic surgery, urology and E.N.T.; desires association with group or private practice, willing to do some general practice. Southern Ontario preferred. Reply to Box 616, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

TWO DOCTORS, one F.R.C.S.(Edinburgh) and the other D.R.C.O.G.(London), seek suitable location to engage in general practice in partnership. Willing to buy if necessary. Reply to Box 622, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

CERTIFIED, 1955, general surgeon, age 30, desires position with group, clinic or surgeon, anywhere in Canada, preferably Ontario. Reply Box 625, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

WANTED: SURGICAL PRACTICE.—Canadian, with family; recent graduate; 4 years' surgical residency to be completed in July. To associate with fellow, or practice alone. Prefer Eastern Canada, but not exclusively. Reply to Box 630, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

ENGLISH GRADUATE, age 29, married, two children, seeks opening in general practice, either single or with group in Prairie Provinces. Residencies in internal medicine, midwifery, anæsthesia. 8 months' experience in general practice. Reply to Dr. Charles F. Wood, Radville, Saskatchewan.

CLASSIFIED ADVERTISEMENTS

ENGLISH SURGEON, F.R.C.S., age 29, maried. Over 5½ years' general surgical and orthopædic training. At present in New York. Seeks opportunity to enter practice in Canada. Reply to Box 652, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

TORONTO GRADUATE, with several years' experience as a surgeon—general practitioner, would like to enter a partnership arrangement with another general practitioner preferably in Alberta, Saskatchewan or Ontario. Reply to Box 651, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

OBSTETRICIAN-GYNÆCOLOGIST.—Certified, age 34, married, Canadian, eligible for F.R.C.S., 5 years' general practice, 5 years' postgraduate training, desires location in a small medical building, or association with a small group or interested individual. Reply to Box 657, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

QUEEN'S, ONTARIO, GRADUATE, 1955, age 33, desires association with practising physician or small group in Western Canada. Interested in permanent basis if mutually acceptable. Rotating internship completed June 1956; will have L.M.C.C. July 1956; available to start August 15, 1956. Reply to Box 658, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

POSITION WANTED.—Halifax. Postgraduate student with considerable experience requires occasional or regular work, mainly evenings and weekends, until June inclusively. Reply to Box 649, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

YOUNG WESTERN CANADIAN PHYSICIAN presently in general practice, wishes relocation within the next year, in small British Columbia community. Would consider assistantship with early partnership in mind; or purchasing practice from retiring doctor, or one leaving for post-graduate work. Reply to Box 647, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

POSITION WANTED.—Canadian, married, bilingual, age 30; rotating internship and 2 years' residency in general surgery and anæsthesia in large teaching hospitals; seeks position in mining or industrial area where he can do general practice and surgery. Would repiace practitioner leaving for further training. Available July 1956. Reply to Box 646, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

EUROPEAN GRADUATE, age 44, married; experienced in general practice, internal medicine and surgery; desires association with individual, group or solo in prosperous community. Considering renting or buying. Available July 1956. Reply to Box 645, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

ANÆSTHESIOLOGIST, age 36, Canadian citizen, Canadian and U.S. trained, American Board eligible, desires position. 7 years' experience in anæsthesiology. All enquiries promptly answered. Reply to Box 640, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

LOCUM TENENS wanted by female physician for the months of May and June 1956. Speaks English, French and German. 2 years' internship. Location in Western Canada preferred. Reply to Box 637, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

BRITISH GRADUATE, 1948, M.D. London Part I., M.R.C.P., D.C.H., writing L.M.C.C. this spring; eligible certification; 7 years' hospital experience; desires position as pædiatrician with group, or early partnership. Southern Ontario or Vancouver district preferred. Available July 1956. Reply to Box 636, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

RADIOLOGIST, certified and licensed in Canada, age 34. Available immediately. Reply to Box 635, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

Practices

UNOPPOSED RURAL SASKATCHEWAN medical and surgical practice. 13-bed union hospital; no contracts; all fee for service. Fully modern home including all furniture (television, electric dryer, stove, fridge, etc.). Total cost $11,500. Some terms. Incumbent leaving for postgraduate work. Available June 1956, or sooner if desired. Reply to Box 598, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

FOR SALE.—Toronto, central location. Radiological practice, completely equipped. Almost new 500 M.A., G.E. make. Suitable for radiologist or for hospital installation. Many extras. Price new was well over $28,000. Will sell for cash or cash deposit plus monthly payments. Reply to Box 624, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

FOR SALE.—Saskatchewan. Active general practice in prosperous rural area. Modern hospital facilities. One other doctor practising in district. Modern house available. Owner specializing. Terms can be arranged. Reply to Box 629, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

(Continued on page 36)

CLASSIFIED ADVERTISEMENTS

FOR SALE.—Large remunerative general practice in Saskatchewan city, with modern hospital facilities and office accommodation. Owner leaving to specialize. Will introduce if buyer arrives prior to June 15. Excellent terms. Small down payment with monthly payments thereafter preferred. Reply to Box 653, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

GENERAL PRACTICE DESIRED.—Would consider purchasing entire practice or a partnership. Have had extensive experience in all phases of general practice; interested in any fair sized Ontario centre or city suburb. Address all letters to Box 643, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

INTERESTED IN PURCHASING A GOOD GENERAL PRACTICE in Winnipeg or Calgary. Would consider single practice or partnership. Have had extensive experience in general practice. Address all letters to Box 644, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

GENERAL PRACTICE in a large district in Manitoba will be available in June 1956 for price of new office equipment and house. 8-bed hospital. Terms to suit. Reply to Box 641, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

Internships and Residencies

ANÆSTHESIOLOGY RESIDENCIES at the University of Minnesota Medical Centre. Two or three year programme with clinical and didactic instruction in all phases of anæsthesia. Board approval. Positions starting every month. Address: F. H. Van Bergen, M.D., University of Minnesota Medical Centre, Minneapolis 14, Minnesota.

RESIDENCY IN PÆDIATRICS.—There is an opening for one resident, July 1, 1956 to June 30, 1957 in pædiatrics at the Royal Alexandra Hospital. Salary $175 per month plus maintenance and laundry. Service covers isolation, maternity and pædiatrics, or 200 beds in all. Applications should be made to Dr. D. R. Easton, Medical Superintendent, Royal Alexandra Hospital, Edmonton, Alberta.

PSYCHIATRIC RESIDENCIES.—HOSPITAL WITH LARGE MEDICAL STAFF OFFERS FULLY ACCREDITED THREE YEAR TRAINING PROGRAMME BEGINNING JULY 1, 1956 FOR MEN AND WOMEN DESIRING CERTIFICATION IN PSYCHIATRY. INCLUDES UNIVERSITY POSTGRADUATE COURSE, GUEST LECTURES, TRAINING IN MODERN THERAPEUTIC PROCEDURES AND SUPERVISED WORK IN MENTAL HYGIENE CLINICS. INITIAL SALARY INCLUDES FULL FAMILY MAINTENANCE. REPLY TO BOX 606, CANADIAN MEDICAL ASSOCIATION JOURNAL, 150 ST. GEORGE STREET, TORONTO 5, ONTARIO.

RESIDENCY IN MEDICINE.—There is an opening for one resident, July 1, 1956 to June 30, 1957 in medicine at the Royal Alexandra Hospital. Salary $175 per month, plus maintenance and laundry. Applications should be made to Dr. D. R. Easton, Medical Superintendent, Royal Alexandra Hospital, Edmonton, Alberta.

AVAILABLE IMMEDIATELY.—Obstetrician and gynæcologist assistant residency, one year approval. 224-bed general hospital, modern, well-equipped; intern and resident programme. House staff allowed full range under proper medical supervision. Full maintenance and uniforms. Monthly stipend $250. Class A medical school graduates only. The Lawrence and Memorial Associated Hospitals, New London, Connecticut. William J. Murray, Jr., M.D., Chairman, Committee on Residents and Interns.

APPROVED ROTATING INTERNSHIPS AND RESIDENCIES in medicine, neurology, psychiatry, 684-bed county hospital near New York city. Exceptional educational opportunity. Apply: Bergen Pines County Hospital, Paramus, New Jersey. Interns: only applicants of approved medical schools will be considered. Stipend $100 monthly plus complete maintenance. Residents: applicants must have completed one-year approved internships. Stipend $200 monthly plus complete maintenance.

ST. LUKE HOSPITAL in Montreal, capacity of 451 beds, is considering applications for internship or residencies in the different services of a general hospital and most specially in the following services where the teaching is approved by the American College of Surgeons: surgery, medicine, obstetrics, oto-rhino-laryngo-ophthalmology, pathology and radiology. Applicants may address their applications to Doctor H. I. Tétreault, Medical Superintendent.

WANTED.—House physicians for 345-bed general hospital. Rotating service; $200 per month; room and board furnished. Must speak fluent English. Apply immediately for July 1 appointment to H. L. Dobbs, Administrator, Kentucky Baptist Hospital, Louisville, Kentucky, U.S.A.

INTERNSHIP APPLICATIONS are being received for July 1956 term for junior rotating interns for one year in anæsthesia, surgery, medicine, pædiatrics, obstetrics and gynæcology, in 560-bed hospital. Excellent experience for those interested in general practice. Also, 1 year senior internship in anæsthesia and pathology. Apply Box 639, Canadian Medical Association Journal, 150 St. George Street, Toronto 5, Ontario.

NEWS AND NOTES

THE INTERNATIONAL FERTILITY ASSOCIATION

The International Fertility Association announces a regional meeting at the Schenley Park Hotel, Pittsburgh, Pa., on March 14. The programme will include papers on management of habitual abortion, male infertility, legal and ethical aspects of therapeutic donor insemination, and panel discussions on endocrine treatment of hypermenorrhœa and hypomenorrhœa and on minimal standards for diagnosis and treatment of female sterility. Information can be obtained from Dr. Paul L. Getzoff, 400 Medical Arts Building, New Orleans 15, Lousiana.

—

HOSPITAL MORBIDITY RATES*

In a foreword to this study of morbidity in Ontario hospitals, the Minister of Health for Ontario points out that most surveys in the health field are concerned with mortality and not sickness and morbidity. In view of the rising costs of hospital stay, the Ontario government decided to study more fully the causes of hospitalization. Their statistics cover 1,648,000 persons who were either inpatients or outpatients in Ontario hospitals in 1951. In making the study, mental hospitals, sanatoria for tuberculosis and private hospitals were omitted. The average length of stay in hospital was 9.5 days and the analysis of cases of admission discloses a great variety of interesting data. Three common causes of admission were analyzed in great detail – neoplasms, mental illness and heart disease. Out of 645,000 hospitalized patients, over 13,000 had a diagnosis of malignant neoplasm. The commonest site was the breast, representing 12.4%; the next largest group was of "cancer of the large intestine except rectum" which contributed almost 9% of the total. Because of the heavy weighting in favour of cancer of breast and uterus, there was a preponderance of cancer cases in women. The largest incidence was in the age group 65 to 74. There was the usual preponderance of male cases of cancer of the œsophagus, stomach, mouth and pharynx, larynx and lung. The large number of admissions for benign neoplasm (over 13%) was mainly due to benign tumours of the female genital apparatus.

Mental illness was also analyzed in detail. Of the 75,000 patients admitted for mental illness, the two largest groups were of unspecified psychoneuroses and anxiety reactions. It is sad to note that the number of admissions for alcoholism exceeds 1,000, a figure higher than, for example, for cancer in the entire respiratory tract. In heart disease, for which there were over 16,000 admissions, the largest group is classified as arteriosclerotic heart disease, including coronary disease, with a nearly 2:1 preponderance in males. A few bizarre causes of hospitalization are mentioned, including for example a case of leprosy, four of epidemic typhus, one each of dengue and yellow fever, and a few cases of beriberi, pellagra, scurvy and rickets.

The method of payment is analyzed. About 40% of patients paid their own accounts while just over 31% were in the Blue Cross scheme. There were few indigents (6%). Other data concern district of origin of patients, age and sex distribution, length of stay, and convalescent, chronic and incurable cases.

*From a report to the Minister of Health, Province of Ontario, 1954.

—

SELECTED PUBLIC HOSPITAL AND MEDICAL CARE PLANS IN CANADA

This is the first bulletin published by the Department of National Health and Welfare dealing with public health care plans in Canada. It analyzes with respect to such aspects as organization, financing, coverage, operation, and utilization, the public hospital plans which have been set up by provincial governments in British Columbia, Alberta, Saskatchewan, the combined hospital and medical care plan in Newfoundland, and the medical care plans operating in the Swift Current area and in certain municipalities in Saskatchewan and Manitoba.

No less than 19% of the total population of Canada has some government-sponsored hospital coverage, while only 27% are involved in medical care coverage of this nature. These schemes are apart from public assistance schemes operating in five provinces and cover residents in the relevant areas without income test or other exclusions. They are of course also separate from plans for Eskimos, Indians, mariners and veterans.

Comparison of methods of organization and financing of compulsory plans is interesting. In British Columbia, administration is central but operation local, with financing from general revenue, whereas in Alberta finance is shared by municipality and province, and in Saskatchewan funds come from general revenue (50%) and personal premiums (50%). The oldest prepaid medical care programme in North America is the Newfoundland cottage hospital programme giving hospital and medical care in less thickly populated areas. Figures are given for utilization and cost, but are difficult to analyze because utilization depends on availability of services as well as economic factors. It is, however, of interest to note the effect of deterrent payments in the Swift Current scheme. Whereas the

(Continued on page 42)

NEWS AND NOTES

(Continued from page 40)

rate for house calls had risen steadily previously, the introduction of deterrent payments in 1953 lowered the rate by 60% that year. A similar deterrent fee for office calls applied a few months later sliced the rate for these by 26%.

The analysis of these programmes has been carefully and conservatively done, and no inferences that cannot be supported by facts are drawn. The whole is a valuable document for medical economists.

AMERICAN INSTITUTE OF DENTAL MEDICINE

The Annual Meeting of the American Institute of Dental Medicine is announced to take place at El Mirador, Palm Springs, California, from November 4-8, 1956. There are five faculty members, who will discuss such subjects as cardiovascular disease with its implications for the dentist and physician, fat metabolism, geriatric problems, the implication of the anatomy and physiology of connective tissue in dentistry, gingivitis, various aspects of oral disease, and various aspects of human communication. Information may be obtained from the Executive Secretary, Miss Marion G. Lewis, 2240 Channing Way, Berkeley 4, California.

CIVIL DEFENCE CONFERENCE

The eighth meeting of the Civil Defence Transportation Advisory Committee was held in Ottawa on February 15, under the chairmanship of H. B. Chase, C.B.E., Commissioner of the Board of Transport Commissioners for Canada.

The prime purpose of the meeting was to discuss further the organization and operation of all forms of transport within the framework of Civil Defence. Also discussed was the role of communications in Civil Defence in relation to the present communication systems of Canadian transport agencies.

Ranking heads from all main transportation agencies of Canada attended the meeting, and included representatives of land, railways and air transportation, the Department of Transport and the Air Transport Board. Principal Civil Defence speakers at the meeting were F. F. Worthington, co-ordinator for federal Civil Defence, and G. H. Hatton, deputy to the co-ordinator.

Among the topics considered were the authority and function of the Department of Transport in the event of emergency; the plans of the railway companies in respect to mobilization and operation of equipment to evacuate people from target cities; the use of commercial and private aircraft in the event of an emergency; the use of shipping, trucking and bus-coach facilities in relation to Civil Defence planning for evacuation, and the adequacy of existing highways in relation to Civil Defence necessities.

Assisting in the general programme were P. H. Fox, chief Civil Defence transportation officer, W. E. McDermott, transportation officer, and K. E. Holmes, chief of communications for Civil Defence.

NEW YORK UNIVERSITY COURSES

A thirteen-part seminar consisting of a survey of the field of *internal medicine* by means of lectures and case demonstrations in the various medical specialities is being offered from April 9 through June 1 by the Post-Graduate Medical School, a unit of the New York University-Bellevue Medical Center. The seminar may be taken in a whole by physicians wishing to prepare for Board examinations, or in part by those who desire a review of particular subjects. The class is limited to 20. Tuition for the entire course is $250.

The control of pain through therapeutic nerve block will be emphasized in an intensive two-week course in *regional anæsthesia* offered by the New York University Post-Graduate Medical School from May 7 through 19. This course is intended to be of special interest to specialists and to physicians working in the fields of re-

(Continued on page 47)

a major stride in clinical enzymology

PARENZYMOL

TRYPSIN BY THE INTRAMUSCULAR ROUTE

Parenzymol is a sesame oil suspension of the proteolytic enzyme trypsin, 5 mg. per cc.

Indicated in acute inflammatory conditions, particularly
phlebitis (thrombophlebitis and phlebothrombosis)
ocular inflammation (iritis, iridocyclitis, and chorioretinitis)
traumatic wounds
leg ulcers (varicose and diabetic)

FOR ACUTE INFLAMMATORY CONDITIONS

Detailed information on request.

FRANK W. HORNER LIMITED
MONTREAL CANADA

NEWS AND NOTES

(Continued from page 42)

habilitation and arthritis and other debilitating diseases. The course is given under the direction of Professor Emery Rovenstine, professor and chairman of the department of anæsthesiology.

Beginning May 21 Dr. Rovenstine will also conduct a one-week course on *Anæsthesiology: Endotracheal and Related Methods.* The course will cover the principles and clinical practices of endotracheal procedures, including operating room bronchoscopy.

Further information and applications may be obtained from the Dean, Post-Graduate Medical School, 550 First Avenue, New York 3, New York.

ANNUAL SCHERING AWARD COMPETITION

The eleventh annual Schering Award competition for medical students in the United States and Canada is announced. Students are invited to participate by selecting one of three suggested subjects and submitting papers to the Schering Award Committee, Bloomfield, N.J. Both a $500 first prize and $250 second prize are offered for each of the three subjects. Decisions are made by a group of judges who are authorities in their respective fields. In addition, every participant in the contest receives a professionally useful gift.

The three subjects for 1956, announced by C. J. Szmal, M.D., chairman of the Schering Award Committee, are:

1. The Clinical Use of Adrenocortical Steroids in Collagen Diseases.
2. Metabolic Aspects of the Aging Process.
3. New Applications of Antihistamines in Medicine and Surgery.

Literature and entry forms are being distributed in the medical schools. Students interested in participating, either individually or in teams, should submit their entry forms before July 1, 1956 and manuscripts must be postmarked not later than September 30, 1956.

CASUALTY SIMULATION

A federal civil defence manual called "Casualty Simulation" has been published by the Department of National Health and Welfare. Its production was recommended by a Committee on Casualty Simulation set up to guide this work, composed of Miss Margaret J. L. MacLaren, Superintendent - in - Chief, St. John Ambulance Brigade, Ottawa, Miss Evelyn A. Pepper, R.N., Nursing Consultant, Civil Defence Health Services, Major Richard Bingham, director of Civil Service Civil Defence, Ottawa, and Dr. Gordon E. Fryer, Medical Consultant, Civil Defence Health Services.

Major Bingham has devised a "kit" much like a fisherman's box of flies, containing an assortment of grease-paints, plasticine, powders, oils, and many of the other tools of the specialist in make-up. Such equipment is valuable in the Civil Defence Health Services training programme when, with the aid of the new manual, demonstrations can be staged for civil defence exercises, first-aid training or traumatic conditions under clinical discussion by physicians and nurses.

The manual is not for indiscriminate distribution, and except for copies to persons trained in this

(Continued on page 49)

NEWS AND NOTES

(Continued from page 47)

skill through civil defence auspices, key people in professions and those organizations directly concerned with Civil Defence Health Services, is obtainable only from the office of the Queen's Printer, Ottawa, at a price of one dollar per copy.

U.S. PUBLIC HEALTH SERVICE PROGRAMME IN ALLERGY AND INFECTIONS

The National Microbiological Institute of the U.S.A. is being renamed the National Institute of Allergy and Infectious Diseases, in keeping with the U.S. Public Health Service expanded programme of research in these fields. The Institute will administer this programme and also support long-term basic studies by grants to research workers elsewhere. A national advisory council on allergy and infectious diseases is being established.

PROJECT IN MEDICAL EDUCATION

Through a generous grant from the Commonwealth Fund, the University of Buffalo School of Medicine will begin in September 1956 an experiment designed to determine whether the development of increased faculty familiarity with fundamental educational principles can make a significant contribution to medical education. The programme will be directed by Dr. George E. Miller, Assistant Professor of Medicine.

During each one-year period participants will be offered the opportunity to take part in a series of seminars and workshops on problems of medical education drawn from the fields of education, sociology, and psychology as well as medicine. They will also take part in regular medical school course instruction.

It is planned to focus attention in seminars and workshops upon five general areas: (1) The teaching-learning process. (2) The nature of the medical student. (3) The evolution of higher, particularly medical, education. (4) Evaluation of the effectiveness of teaching and learning. (5) Communication, including techniques of instruction.

Each of these conferences will be conducted by a medical and a non-medical faculty member of special competence. In general such seminars will begin with the concrete problems faced by the participating medical teachers and from these specific examples pertinent general principles will be developed.

This is not a course in teaching methods, but a programme designed to broaden the understanding of educational principles by men already well grounded in the subject matter of medicine, through analysis and discussion of the problems they face.

Participants will be drawn from both basic science and clinical departments at the University of Buffalo School of Medicine and will be partly relieved from departmental responsibilities. In addition, four visiting positions at stipends of $7,000-$8,000 will be offered each year to qualified members of other medical school faculties who might wish to take part.

(Continued on page 51)

NEWS AND NOTES

(Continued from page 49)

A NEW FRENCH JOURNAL OF CLINICAL INVESTIGATION

We have received the first number of *Revue Française d'Etudes Cliniques et Biologiques*. This can be definitely classified as a rather highbrow journal for clinical investigators. It would seem that the idea for it grew from discussions between research workers from various departments and various disciplines, who met to compare notes and discuss common problems. This handsome new journal provides a forum for those engaged in clinical investigation to put forward their research for the information and criticism of their colleagues. The first number contains studies on proteins in myeloma, metabolic effects of Diamox plus potassium, the artificial kidney in acute uræmia and Henoch's purpura, together with a general review of the hæmostatic action of the liver and a technical note on determination of CO_2 partial pressure. The reviews and abstracts at the end of the journal refer mainly to French work. Clinical investigators with a reading knowledge of French should find it worth while to look at this new journal.

WHO EXECUTIVE BOARD

The Executive Board of the World Health Organization has concluded its 17th session, having convened on January 17 under the chairmanship of Dr. S. Al-Wahbi.

In its 17-day meeting the Board disposed of over 60 agenda items, its principal decisions being as follows:

Study of Cancer Tissues.—The creation of Registry Centres for the study of cancer tissues in various parts of the world will be studied by WHO, because the comparative research which could be undertaken in such Centres might, it is believed, give the clue to the cause or causes of cancer.

Insect Resistance to Insecticides.—Alarming signs of resistance to modern pesticides are appearing in a number of insects responsible for the transmission of some of the worst epidemic diseases including malaria, yellow fever, plague and typhus. A vigorous programme of research was approved which may lead to surer insect control.

World Fund for Malaria Eradication.—The first two contributions have been received for this voluntary fund established last May at the VIII World Health Assembly in Mexico: the contributions come from the Government of Brunei, which offers $10,000 and from the Republic of China, which has offered equipment valued at $4,000. The Board also appointed a five-member Committee on Malaria Eradication to advise the Direc-

(Continued on page 54)

Canad. M. A. J.
Mar. 15, 1956, vol. 74

NEWS AND NOTES

(Continued from page 51)

tor-General on the various aspects of the intensified malaria campaigns, and on steps to obtain increased voluntary contributions from official and private sources.

—

FEDERAL GRANT TO ONTARIO CIVIL DEFENCE

For the first time under the co-operative Civil Defence financial assistance agreement between the federal government and Ontario, a provincial project to cost $200,441.50 has been approved by the Honourable Paul Martin, Minister of National Health and Welfare and federal Cabinet Minister responsible for Civil Defence. This constitutes the largest single grant to date in support of provincial Civil Defence measures in Canada.

Under the federal Financial Assistance Programme for Civil Defence, it was mutually agreed in February 1955 that all expenditures for Civil Defence in the province of Ontario would be shared on a 50-50 basis between the federal government and the province. Under this arrangement, the federal contribution to the provincial expenditure will be $100,220.75. In like manner, federal and provincial financial aid in Civil Defence is made available to municipal Civil Defence organizations with the federal government assuming 50% of the cost, the provincial government 25% and the municipal government 25%. In this particular instance, the provincial expenditure is for the fiscal year ending March 31, 1956.

While the Ontario provincial government has been assisting the municipalities in the setting up of their Civil Defence programmes, this is the first time that funds have been authorized specifically for a Civil Defence organization in and for the province of Ontario. Major expenditures in the provincial project are $66,191.50 for personal services, $88,800 for equipment, $18,000 for travel, $12,500 for supplies and materials, $6,750 for utility services and $8,200 for miscellaneous expenditures.

Specific items of expenditure in the provincial project include the purchase of four rescue vehicles at a cost of $14,000, the purchase of nine sets of radio transmitters, receivers and generators at a cost of $19,800 and the training and equipping of 700 Provincial Auxiliary Police at a cost of $32,000. An item of $1,500 is also provided for the designing, drafting and planning of a provincial Civil Defence control centre which has a tentative estimate of $80,000.

—

ACCIDENTS

Accidental loss of life from fires and burns by other means is nearly three times as high and that from poisonous gas five times as high in the winter as in summer, according to a study by statisticians of the Metropolitan Life Insurance Company.

Both classes of fatalities are associated largely with the increased use of heating facilities.

Many poisonous gas fatalities, the statisticians report, result from improperly installed or defective heaters. An appreciable number are due to running an automobile motor in a closed garage or in a parked car.

Fatal falls also are at a maximum in winter, although the rise is relatively moderate. The death toll for February, the peak month, is only about 8% higher than the annual average.

—

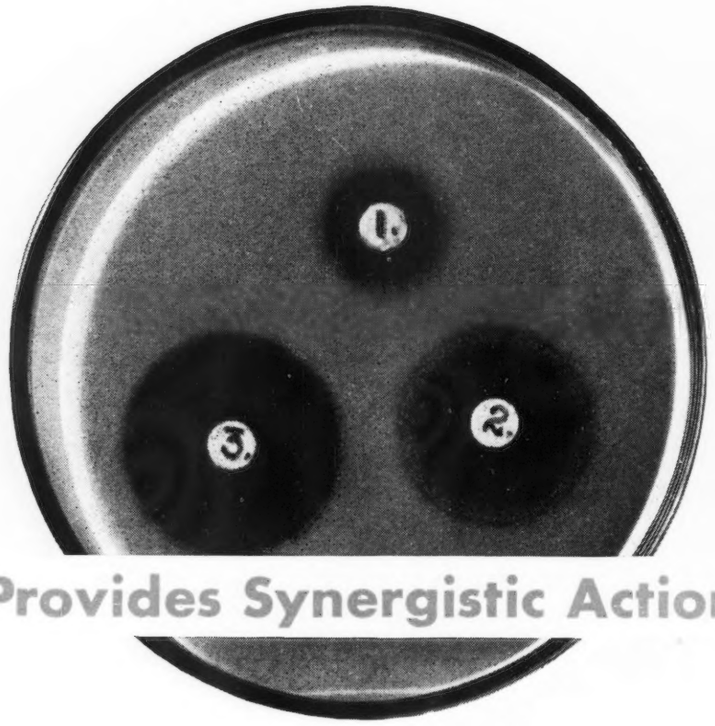
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The Office of the Secretary of the American Board of Obstetrics and Gynecology, Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio, announces that the next scheduled examinations (Part II), oral and clinical, for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from May 11 through May 20, 1956. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible.

"TRULFACILLIN"

TRIPLE SULFAS and PENICILLIN



STAPH. AUREUS No. 209

1. Inhibitory zone produced by disc impregnated with 1.0 mg. triple sulfonamides.
2. Inhibitory zone produced by disc impregnated with 0.5 unit of penicillin-G.
3. Inhibitory zone produced by disc impregnated with 1.0 mg. triple sulfonamides plus 0.5 unit of penicillin-G.

Provides Synergistic Action

in the treatment of

PNEUMOCOCCIC, STAPHYLOCOCCIC, GONOCOCCIC
and
HEMOLYTIC STREPTOCOCCIC INFECTIONS

•

SCARLET FEVER, OTITIS MEDIA, TONSILLITIS,
VINCENT'S ANGINA and URINARY TRACT INFECTIONS

•

and for the prevention of
SECONDARY INFECTIONS
during
INFLUENZA, MEASLES, WHOOPING COUGH

Frosst

Charles E. Frosst & Co.
MONTREAL CANADA

"TRULFACILLIN"

TABLETS

Each tablet contains:

Sulfamethazine..... 167 mg.
Sulfadiazine..... 167 mg.
Sulfamerazine..... 167 mg.
} 7½ gr.

Crystalline potassium penicillin-G...
- **100**,000 I.U. — "TRULFACILLIN" 7½-100
- **150**,000 I.U. — "TRULFACILLIN" 7½-150
- **300**,000 I.U. — "TRULFACILLIN" 7½-300

DOSE: One or two tablets every 4 to 6 hours. Trulfacillin tablets should be administered one-half hour before or two hours after meals.

Boxes of 12 tablets. Each tablet is sealed in foil.

SUSPENSIONS

Each 5 cc. teaspoonful contains:

Sulfamethazine..... 167 mg.
Sulfadiazine..... 167 mg.
Sulfamerazine..... 167 mg.
} 7½ gr.

Benzathine penicillin-G.....
- **100**,000 I.U. — "TRULFACILLIN" 7½-100
- **150**,000 I.U. — "TRULFACILLIN" 7½-150
- **300**,000 I.U. — "TRULFACILLIN" 7½-300

DOSE: One to two teaspoonfuls every 4 to 6 hours.

Bottles of 60 cc.

"TRULFACILLIN" PEDIATRIC

SUSPENSIONS

Each 5 cc. teaspoonful contains:

Sulfamethazine..... 65 mg.
Sulfadiazine..... 65 mg.
Sulfamerazine..... 65 mg.
} 3 gr.

Benzathine penicillin-G.....
- **100**,000 I.U. — "TRULFACILLIN" PEDIATRIC 3-100
- **200**,000 I.U. — "TRULFACILLIN" PEDIATRIC 3-200

DOSE: Infants and children — one teaspoonful per 4 pounds of body weight per day in divided doses, e.g., child weighing 8 lb. — ½ teaspoonful every 6 hours; child weighing 16 lb. — 1 teaspoonful every 6 hours.

Bottles of 60 cc.

CAUTION

While untoward effects associated with sulfonamide therapy are greatly reduced by the use of Trulfacillin preparations, vigilance should not be relaxed in the search for and recognition of agranulocytosis, fever, joint pains, skin reactions, etc. In rare instances the injection of penicillin, and more rarely still its oral administration, may cause acute anaphylaxis. The reaction appears to occur more frequently in patients with bronchial asthma and other allergies, or in those who have previously demonstrated sensitivity to penicillin.

Charles E. Frosst & Co.
MONTREAL CANADA

WHERE SULFONAMIDES ALONE ARE INDICATED

TRIPLE SULFONAMIDE COMBINATIONS *that provide* EFFECTIVENESS WITH MINIMAL HAZARD

in

PNEUMOCOCCIC, STAPHYLOCOCCIC, MENINGOCOCCIC, GONOCOCCIC and HEMOLYTIC STREPTOCOCCIC INFECTIONS

SCARLET FEVER • MEASLES
OTITIS MEDIA • TONSILLITIS
VINCENT'S ANGINA • MENINGITIS
URINARY TRACT INFECTIONS

"TRULFA"

SUSPENSION

Each 5 cc. teaspoonful contains:

Sulfathiazole	167 mg.	7½ gr.
Sulfadiazine	167 mg.	
Sulfamerazine	167 mg.	

in a pleasantly flavoured suspension.

TABLET

Each scored tablet contains:

Sulfathiazole	167 mg.	7½ gr.
Sulfadiazine	167 mg.	
Sulfamerazine	167 mg.	

"TRULFA" and "TRULFA-ZINE" provide high solubiiity in urine with virtual freedom from sulfonamide crystalluria, and greatly reduced sensitivity through the use of triple sulfonamides.[1]

[1]Lehr, David, "Present Status of Sulfonamide Therapy", Scientific Exhibit, Annual Convention A.M.A., San Francisco, 1954.

"TRULFA-ZINE"

SUSPENSION

Similar in formula to Trulfa Suspension, except that sulfamethazine is used instead of sulfathiazole.

TABLET

Similar in formula to Trulfa Tablet, except that sulfamethazine is used instead of sulfathiazole.

DOSAGE

SUSPENSIONS

Infants and Children: ½ teaspoonful (2.5 cc.) for each 4 pounds of body weight per day in divided doses (approximately 1 grain per pound of body weight) e.g. Child's weight—24 pounds: 1 teaspoonful 3 times daily.
Adults: 2 to 4 teaspoonfuls in water every 4-6 hours.

Bottles of 16 fluid ounces.

TABLETS

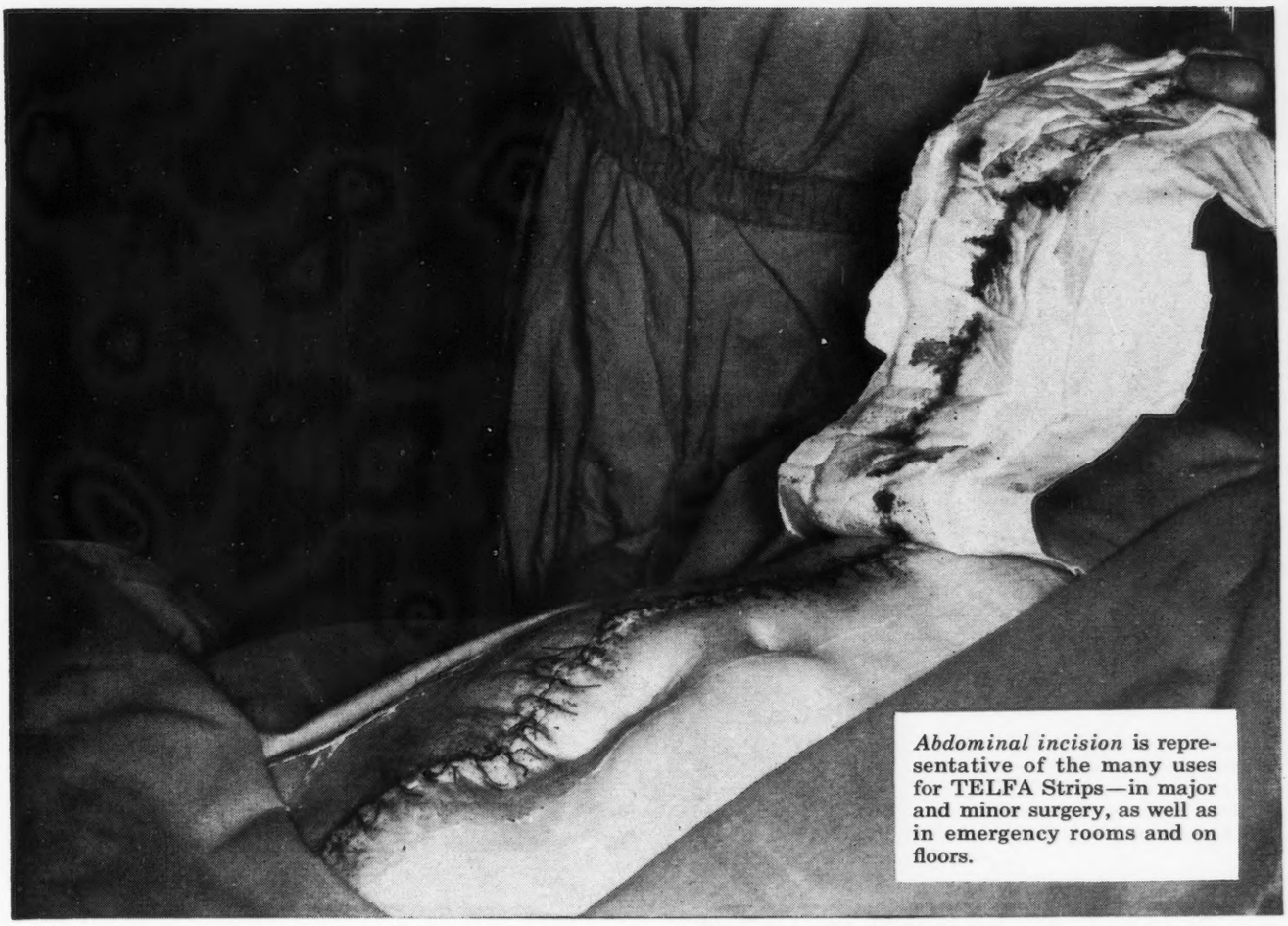
1 to 2 tablets every four to six hours.

Bottles of 100.

CAUTION

While untoward effects associated with sulfonamide therapy are greatly reduced by administration of Trulfa and Trulfa-Zine preparations, vigilance should not be relaxed in the search for and recognition of agranulocytosis, fever, joint pains, skin reactions, etc.

Charles E. Frosst & Co.
MONTREAL CANADA



Abdominal incision is representative of the many uses for TELFA Strips—in major and minor surgery, as well as in emergency rooms and on floors.

NEW TELFA *DRESSING* keeps wounds dry without sticking!

Promotes better healing of all wounds — by primary intention

This new all-purpose dressing is both fully absorbent and completely non-adherent. TELFA Strips keep wounds dry, yet can be changed easily, painlessly, and without disruption of the healing wound surface.

TELFA is a non-wettable, perforated plastic film bonded to *Webril*®, a highly absorbent backing of 100% pure cotton.

Faster healing has been demonstrated in thousands of clinical wounds. Wounds never grow into the dressing, yet are kept dry. TELFA non-adherent dressings are economical, too. They cost no more than conventional dressings, and save considerable doctor and nurse time in changing dressings.

HOW TO USE: Apply TELFA with *film side* directly on wound (precise perforations pass drainage freely, but prevent reverse flow). Then cover with preferred sponge or drainage pad (on slight wounds, no further dressing is needed). Finally, secure in place with adhesive or *Kerlix*® bandage.

Supplied in 2½″ x 4″ and 3″ x 8″ Strips, in hospital cases.

Curity
TRADE MARK

TELFA
TRADE MARK

NON-ADHERENT STRIPS

BAUER & BLACK

Division of The Kendall Company (Canada) Limited
Curity Avenue, Toronto 16

to restore appetite and promote weight gain

LACTOFORT

FOR RELUCTANT FEEDERS

- In infants with persistent anorexia, improvement in appetite is commonly noted within five days.

LACTOFORT—*with the amino acid* L-*lysine* • *A Pediatric First*

Lactofort is the *first* and *only* pediatric dietary supplement to provide adequate quantities of *growth-essential* lysine for appetite stimulation and weight gain.

Lactofort improves the protein quality of milk to a point where it approximates that of high-quality meat.

WITH LACTOFORT SUPPORT

- *markedly improved appetite*
- *rapid weight gain*
- *normalized growth rate*

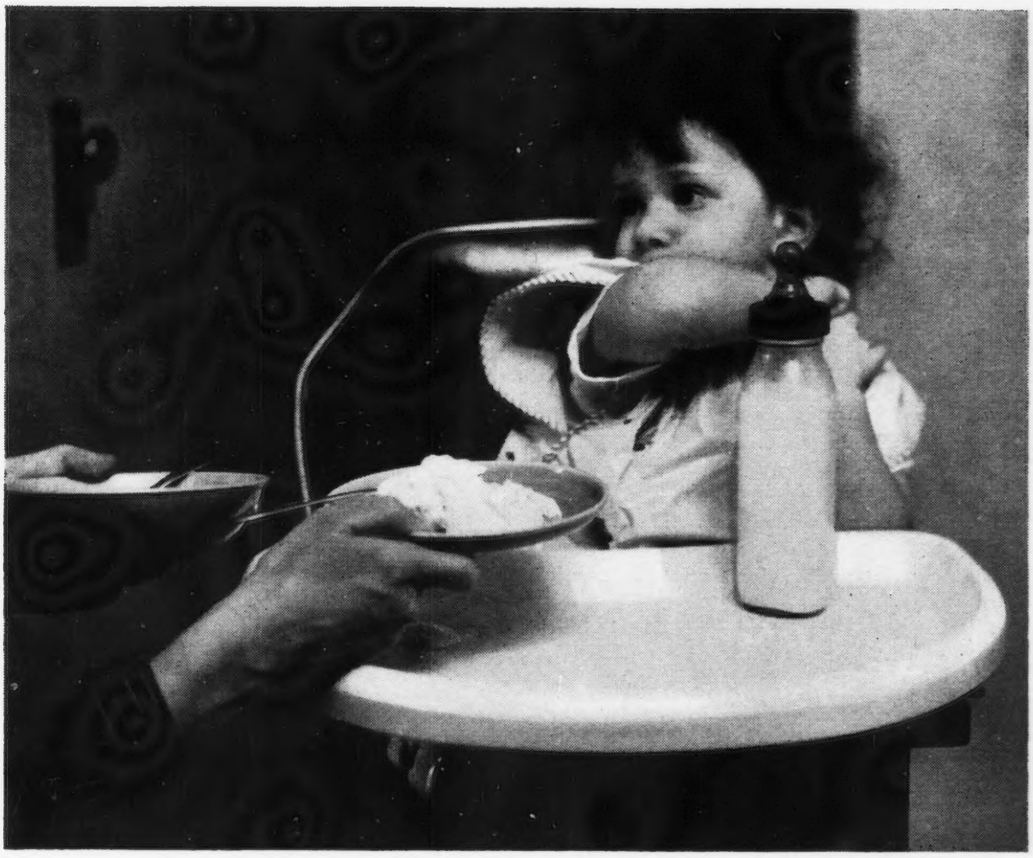
2 measures (2.3 Gm.) of Lactofort supply:

L-Lysine (from L-lysine monohydrochloride)	500	mg.
Vitamin A	3750	I.U.
Vitamin D	1000	I.U.
Thiamine (as mononitrate)	0.75	mg.
Riboflavin	1.25	mg.
Niacinamide	7.5	mg.
Vitamin B_{12} (crystalline)	2.5	mcg.
Folic acid	0.25	mg.
Ascorbic acid (from sodium ascorbate)	75	mg.
Pyridoxine hydrochloride	0.75	mg.
Calcium d-pantothenate	7.5	mg.
Iron ammonium citrate green (elemental iron 7.5 mg.)	50	mg.
Calcium gluconate (elemental calcium 130 mg.)	1.45	Gm.

Supplied: In 46 Gm. bottles with special Lactofort measuring spoon enclosed.

a dry powder of stable potency — odorless • tasteless • readily soluble

WHITE LABORATORIES OF CANADA, LTD.
64 Gerrard St. E., Toronto, Ont.



to restore appetite and promote weight gain

LACTOFORT

FOR RELUCTANT FEEDERS

- In infants with persistent anorexia, improvement in appetite is commonly noted within five days.

LACTOFORT—*with the amino acid* L-*lysine* • *A Pediatric First*

Lactofort is the *first* and *only* pediatric dietary supplement to provide adequate quantities of *growth-essential* lysine for appetite stimulation and weight gain.

Lactofort improves the protein quality of milk to a point where it approximates that of high-quality meat.

WITH LACTOFORT SUPPORT

- *markedly improved appetite*
- *rapid weight gain*
- *normalized growth rate*

2 measures (2.3 Gm.) of Lactofort supply:

L-Lysine (from L-lysine monohydrochloride)	500	mg.
Vitamin A	3750	I.U.
Vitamin D	1000	I.U.
Thiamine (as mononitrate)	0.75	mg.
Riboflavin	1.25	mg.
Niacinamide	7.5	mg.
Vitamin B_{12} (crystalline)	2.5	mcg.
Folic acid	0.25	mg.
Ascorbic acid (from sodium ascorbate)	75	mg.
Pyridoxine hydrochloride	0.75	mg.
Calcium d-pantothenate	7.5	mg.
Iron ammonium citrate green (elemental iron 7.5 mg.)	50	mg.
Calcium gluconate (elemental calcium 130 mg.)	1.45	Gm.

Supplied: In 46 Gm. bottles with special Lactofort measuring spoon enclosed.

a dry powder of stable potency—odorless • tasteless • readily soluble

WHITE LABORATORIES OF CANADA, LTD.
64 Gerrard St. E., Toronto, Ont.

ACHROMYCIN
liquid pediatric drops

now in handy, plastic dropper-bottle

Accurate dosage made easier. Same popular cherry flavor

A new unbreakable dropper-bottle makes it easier for mothers to accurately dispense ACHROMYCIN* Tetracycline Liquid Pediatric Drops. As a result, you can prescribe with greater confidence that your exact regimen will be followed. You can be certain, also, that even the tiniest tot will take to the cherry flavor of this product. The drops can be squeezed directly onto the child's tongue, or mixed with milk, fruit juice, or other liquids. Potency: 100 mg. per cc. (20 drops).

Of course, this is just one of the many dosage forms of ACHROMYCIN prepared for your convenience. From 21 types, you can choose the one best suited to the patient's needs. Each provides true broad-spectrum activity, and prompt control of infection with negligible side effects.

DAILY DOSAGE OF ACHROMYCIN Liquid Pediatric Drops is easy to remember, too: one drop per pound of body weight, divided into four equal doses, at meals and at bedtime.

A WIDELY USED form of tetracycline is ACHROMYCIN Capsules—the only dry-filled, sealed capsules on the market. Advantage: rapid and complete absorption, tamperproof contents. Available in potencies of 50, 100, and 250 mg.

MINOR INFECTIONS of the mouth and throat can often be controlled with ACHROMYCIN PHARYNGETS* Troches alone. (In severe infections, a systemic form of ACHROMYCIN should also be used.) Each cherry-flavored PHARYNGETS Troche supplies 15 mg. of Lederle's tetracycline.

OCULAR INFECTIONS of many kinds, including various forms of conjunctivitis, respond to ACHROMYCIN Ointment (Ophthalmic) 1%. Bland, simple to apply, does not sting or burn. Mild infections may respond within 48 hours.

The Lederle representative or your local pharmacist will gladly tell you about the many other ACHROMYCIN *dosage forms.*

LEDERLE LABORATORIES DIVISION
NORTH AMERICAN Cyanamid LIMITED
MONTREAL, QUEBEC

Lederle

*REG. TRADE-MARK IN CANADA

LEUKOPLAST.....

THE IDEAL ADHESIVE TAPE

WATER-REPELLENT
WHITE OR FLESH
LIGHTWEIGHT TEXTURE
EXTRA STRONG
LONG STORAGE LIFE
RESISTS TEMPERATURE CHANGE
NON-IRRITATING

SOLD COAST TO COAST

TORONTO
MONTREAL
HALIFAX
THE **J. F. HARTZ** *Company Limited*

WINNIPEG - CAMPBELL & HYMAN *Limited*

CALGARY - STANDARD SURGICAL *Supply Company*

VICTORIA - MCGILL & ORME *Surg. Supplies Ltd.*

ORIGINAL Beiersdorf PRODUCT

SYMBOL OF QUALITY

A-L 12a

neuro-centrine*

NEURO-CENTRINE TABLETS give relief on all levels affecting the patient, by combining the action of three effective ingredients.

INDICATED as adjunctive therapy in the control of stress syndromes, spastic colitis, gastric and duodenal ulcers, biliary colic, pylorospasm and hyperemesis. It may be especially valuable for control of emotional tension, anxiety and apprehension which usually accompany these disturbances.

CONTRA-INDICATIONS: Glaucoma, severe hepatic or renal impairment, barbiturate addiction, urinary retention and prostatism.

DOSAGE for adults is usually 1 tablet 3 to 4 times a day. For children, dosage is according to age and weight.

*Trademark

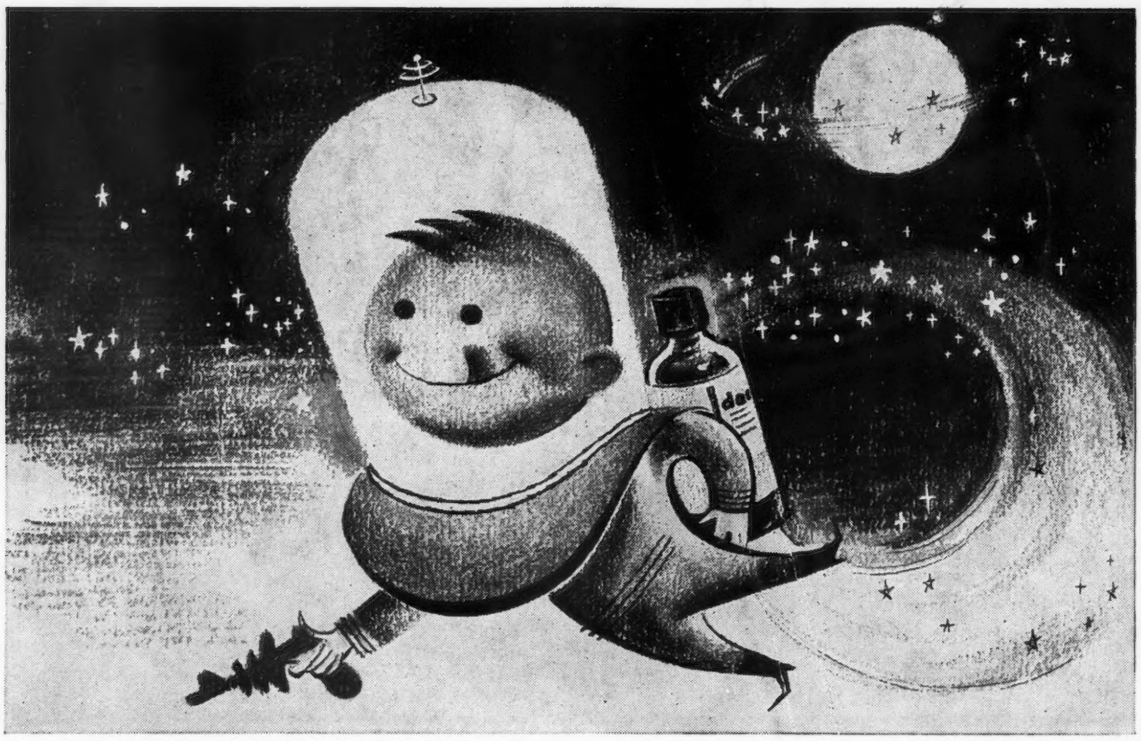
BRISTOL LABORATORIES

Can you help me, Doctor?

She complains of a vague stomach discomfort . . . and you begin a careful investigation. With all the facts in, you can then make a diagnosis. It may be that your patient is only nervous and tense. However, very often the causes of gastrointestinal irritability, hyperacidity and spasm are of cephalic, gastric and intestinal origin. Therefore, to give the patient emotional as well as physical relief, NEURO-CENTRINE TABLETS combine three effective ingredients. CENTRINE . . . to check spasms without causing harmful side effects. PHENOBARBITAL . . . to induce sedation and relaxation of tense muscles. RESERPINE . . . to promote tranquility and a feeling of well-being.

Bristol

INDEX TO ADVERTISERS



NEW..

for higher level vitamin Supplementation . . .

Deca-Mulcin

New pleasant-tasting, teaspoon dosage, multivitamin preparation.

- well tolerated
- packaged in bottle with 'no-drip' pouring lip.
- is miscible with infant foods.
- supplies 10 nutritionally significant vitamins, including B_6 and B_{12}, in **hypoallergenic** form.

Each teaspoon (5 cc.) of Deca-Mulcin supplies:

Vitamin A	3000 I.U.
Vitamin D	1000 I.U.
Thiamine (B_1)	1 mg.
Riboflavin (B_2)	1.5 mg.
Niacinamide	10 mg.
Ascorbic Acid	50 mg.
Pyridoxine	1 mg.
d-Panthenol	5 mg.
Biotin	30 mcg.
Cyanocobalamin (B_{12})	3 mcg.

MEAD | SYMBOL OF SERVICE TO THE PHYSICIAN

MEAD JOHNSON & COMPANY OF CANADA LIMITED • TORONTO • BELLEVILLE